EFFECTIVENESS OF THERAPEUTIC PLAY ON BEHAVIOURAL DISTRESS AND SELECTED PHYSIOLOGICAL PARAMETERS OF CHILDREN UNDERGOING INVASIVE MEDICAL PROCEDURES AT KMCH COIMBATORE

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A DISSERTATION SUBMITTED TO THE TAMILNADU
Dr. M. G. R. MEDICAL UNIVERSITY, CHENNAI, IN
PARTIAL FULFILMENT OF REQUIREMENT
FOR THE DEGREE OF MASTER OF
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APRIL 2014

CERTIFICATE

This is to certify that the Dissertation entitled **"EFFECTIVENESS OF THERAPEUTIC PLAY ON BEHAVIOURAL DISTRESS AND SELECTED PHYSIOLOGICAL PARAMETERS OF CHILDREN UNDERGOING INVASIVE MEDICAL PROCEDURES AT KMCH COIMBATORE"** is submitted to the faculty of nursing, **THE TAMILNADU DR. M. G. R. MEDICAL UNIVERSITY, CHENNAI** by **Reg. No. 301215452** in partial fulfillment of requirement for the degree of Master of Science in Nursing. It is the bonafide work done by her and the conclusions are her own. It is further certified that this dissertation or any part thereof has not formed the basis for award of any degree, diploma or similar titles.

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CHAPTER – I

INTRODUCTION

Play is considered as a ubiquitous language of children. It is one of the most important forms of communication and it's an effective technique in relation to children. Evidences say that the therapeutic play is effective in reducing psychological stress in hospitalized children. Play is not only universal but also essential for human development. Play serves as one of the important component in encouraging emotional expression, including safe release of anger and hostility in children. Play encourages children and supports their right to make choices in stepping forward.. To maintain sound mental and physical health parents and caregivers must identify the play needs of their children**(Susan Dull, 2001).**

Play is the term so commonly used that its real significance is apt to be lost. In its stickiest sense it means any activity engaged in for the enjoyment it gives, without consideration of the end result. It is entered into voluntarily and is lacking in external force or compulsion. Children use play as a means to establish contact with the others, as a source of information, as a medium of observations, and as a method for communication. That is, Play is very essential to positive human relation and development. **(Kottman, 2001).**In the late nineteenth century Florence nightingale emphasized the importance of play, advocating care for physical hygiene, food, environment, good recreation and fresh air for the child **(Weisler, 1976).**

All children need to play irrespective of age, culture, social background, and economic circumstances. In a hospital, specific types of play can provide an effective venue for personal development and increased well-being of the children. In particular, therapeutic play refers to specialized activities for the hospitalized children that are developmentally supportive and facilitates the emotional well-being in new environment. The focus of therapeutic play is on the promotion of continuing 'normal development' while enabling children to respond more effectively to difficult situations such as medical experiences. Therefore, therapeutic play, is a less structured way which focuses on the process of play as a mechanism for mastering developmental milestones and critical events such as hospitalization.(**Koller , 2008).**

Therapeutic play is a technique which is a child's natural means of expression, namely plays, is used as a therapeutic method to assist him/her in coping with emotional stress or trauma. Therapeutic play has been used effectively with children who have a better understanding level of a normal three to eight year old, who are already in distress due to family problems (e.g., parental divorce, sibling rivalry), nail biters, bed wetters, aggressive or cruel, social underdeveloped, or victims of child abuse. It has also been used with special education students whose disability is a source of anxiety or emotional turmoil **(Mc Quaid, 1996).**

Practitioners of therapeutic play believe that this is a method which allows the child to manipulate his world on a smaller scale, which cannot be done in the child's everyday environment. With the guidance of a person who reacts in a designated manner and by playing with specially selected materials, the child displays his/her feelings, bringing out his/her hidden emotions to the surface where he/she can face them and cope with them. In its most psychotherapeutic form, the teacher is unconditionally accepts anything the child say or do **(Peterson, 1989).**

Hospitalization is a stressful experience for children of all ages. For a child who has limited or no past experience, or has preconceived ideas derived from media or bad experience, it can be more frightening. During a serious illness, children of all age need their parents or primary care givers with them and cannot tolerate their absence even for short periods. Hospitalization is the period when childrens are more stressed and they want their love and affection more during this period **(Visintainer, 1975).**

Children has limited knowledge of the outside world so hospitalization for even acute illness, create severe stress for them because of their attachment to home and family, their cognitive limitations, the physical dislocation from the family and the disruption of normal activities and relationship with peers. The stress related to illness and hospitalization can lead to depression and anxiety, which are behaviourally expressed as withdrawal, regression, decreased co-operation, aggression, disruptive behaviour and sleep disturbances **(Sharon Cooper ,1985).**

Children shows pain, anxiety, loss of control and fear for any bodily injury as common problems for receiving medical care. Immunizations, management in the emergency room, pre-hospitalization procedures, and hospitalization are all a part of the medical arena. Coping and cooperating to medical procedures are determined by both fear and the developmental age of the child. Younger children are expected to be always more anxious and distressed than the older children. By the age of 3 to 4 years the children are able to rate the intensity of pain they perceive **(Lim, 2008).**

"Distress" is a reaction to stress with emotional overtones. Coping is also a reaction to stress. Lazarus and Folkman define "coping" as "constantly changing cognitive and behavioural efforts to manage the specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person". Thus, in Lazarus' view, distress is an emotional reaction whereas coping always involves efforts to deal with the stress. This definition also suggests that coping strategies used by the individual may vary across types of stressor and over time **(Lazarus, 1984).**

Coping is postulated to change across persons, time, and stressors, the study of coping is inherently complex. Children typically do not perform coping behaviour for painful procedures. These complexities are magnified in children's coping because a child's ability to effectively appraise a stressor and the coping resources that are available is dependent on the child's rapidly shifting developmental level **(Dahiquist, 1986).**

Emotional and behavioural problems of children can be brought to a control by using play therapy because of its unique nature and focused mostly on the developmental needs of each age group. Children will not have a fully developed capacity for abstract thought especially those below the age of 11 years, which is a prerequisite to understand complex issues and meaningful expression of their thoughts, motives, and feelings. Thus, children more naturally express themselves through the real world of play and activity unlike adults who communicate naturally through words**(Dansky, 1973).**

NEED FOR THE STUDY

Play is not a cultural barrier for children in any community. Children of all age and culture manage to integrate play into their daily tasks. This suggests that play is not only universal accepted but also is considered as essential in human development. Research evidences has repeatedly proved that the play has are profound and wide-ranging benefits associated with. Evidence-based practice in child life council provides an empirical findings regarding the value of play for children in the hospital and to assert that play constitutes an integral component**(Fisher, 1992).**

Preparing child ahead of time for things they may experience in the hospital will reduce their anxieties and help them to cope with the procedure and trust the people who care for them. A thorough explanation or medical play can be given to the children before any medical procedures, test or surgery to make them understand the procedure and encourage them to express their emotions. This will allow them to explore and play with the medical procedures and thus cope with the procedures. Psychological treatments for procedural distress have shown good results in paediatrics and several institutions are recommended their implementation to reduce the procedural distress, anxiety and pain associated with painful medical procedures (**Fegley, 2006).**

The audiovisual distraction was observed to be effective in reduction of self reported pain in a randomized controlled study to find out the efficacy of non-pharmacological methods receiving venipuncture in a Paediatric department among 300 patients age ranging from 8-9 years. The samples were randomized into audiovisual distraction group, intervention group and control group, each group with 100 members respectively. The distraction improved patient co-operation and increased the rate of success in venipuncture procedures**(Wang, 2008).**

Children utilises play materials to directly or symbolically to let out their feelings, thoughts and experiences that they are not able to express meaningfully through words. Play is considered as a medium for communication between the child and the medical therapist on a belief that it allows children to fill the gap between their experiences and understanding and thereby providing the means for insight,

cooperation, learning, solving the problem, coping with the procedure and mastery **(McGrath, 2001).**

A meta-analysis of 93 controlled outcome studies were viewed to assess the overall efficiency of play therapy and to determine factors that might impact its effectiveness. The overall treatment effect for play therapy intervention was 0.80standard deviations. Further analysis revealed that effects were more positive for humanistic treatment and that using parents in play therapy produced the largest effects. Play therapy appeared equally effective across age, gender and presenting issue **(Sue Bratton, 2005).**

A study found that the level of anxiety and distress was higher among children who had undergone venipuncture procedure and they were less cooperative during the time of procedure. Also, these painful procedures were associate with alteration of neuropath ways and finally lead to an increase behavioural sensitivity to later medical insult **(Bhargava, 2007).**

Many children are seen in Paediatricians' offices and experience anxiety related to visiting the doctor. Many studies have been conducted to examine the effects of medical play using medical equipments on children in the medical setting and for children in non-medical settings and have found that medical play allows for a child to express their anxiety about medical items and decreases anxiety**(Burstein, 1979).**

Sixty six children, age 2.5 – 10.5 years were assessed for the effectiveness of a combination of three behavioural coping techniques in reducing children's adverse reaction to invasive procedures. The group was divided for one of the following treatment: information only, coping, filmed modelling or coping plus filmed modelling. Their reaction to hospitalization and procedure were assessed using several observational behaviour, physiological and self report technique. Result shows children receiving coping plus modelling technique were more calm and co-operative during invasive procedure than other groups. **(Lizette, Peterson, 2010)**

An evidence based practice statement based on many studies conducted on effectiveness of psychological preparation of children to reduce anxiety and fear prior to any medical procedure. On the basis of an extensive review of literature, he

concluded that most children prepared for medical procedures experience significantly lower level of fear and anxiety as compared to child who are not prepared **(Donna Koller, 2007).**

Potentially painful procedures and basic medical procedures involving blood sampling can lead to considerable agony for children and their care givers. It is important that these procedures should be undertaken with care and little pain as possible. Result of such procedures are many children cope, many do not. Some children give rise to a range of negative emotional and behavioural consequences, fear and pain in later life. Many children and young people exhibit such distress that the process becomes anxious and eventually forsaken in the later period **(Alistair Duff, 2012).**

A number of studies have focused on psychological preparation methods that can mitigate the stress of hospitalization. Many of these studies have examined the effect of therapeutic play or education on anxiety levels of hospitalized children or on changes in their behaviour after discharge. However no studies have evaluated the effect of therapeutic play on physiological indicators of stress such as blood pressure and heart rate during stressful hospital procedures. The purpose of this study is to look at both physiological and behavioural response to stressful hospital procedures **(Visintainer, 1975).**

The investigator, during clinical posting, observed that most of children are undergoing invasive medical procedures, find it difficult to cope up with pain and shows behaviour distress during the procedure. So, the investigator felt that the need of therapeutic play before any painful procedures is to give comfort and cope with the painful medical procedures, the review of literature and clinical experience with children motivated the researcher to take a study to assess the effectiveness of Therapeutic play on Behavioural Distress and selected Physiological Parameters of children undergoing invasive medical procedures.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of Therapeutic play on Behavioural Distress and selected Physiological Parameters of Children undergoing Invasive Medical Procedures at Kovai Medical Center and Hospital Coimbatore

OBJECTIVES

- Assess the Behavioural distress and physiological parameters of children undergoing Invasive Medical Procedures
- Compare the effectiveness of Therapeutic play on Behavioural distress of Children between Experimental and Control group.
- Compare the effectiveness of Therapeutic play on Physiological parameters of Children in Experimental and Control group
- Associate the level of Behavioural distress with selected background variables of Children in Experimental group
- Associate the level of Behavioural distress with selected background variables of Children in control group

OPERATIONAL DEFINITIONS

- THERAPEUTIC PLAY: The formal play of handling and manipulating the medical equipments used for Medical procedures.

- BEHAVIOURAL DISTRESS: The behavioural response of the child reflected through a range of behaviour response from information seeking to gross movement of body for the painful procedure as observed by the investigator through observation Scale of Behavioural Distress (OSBD).

- PHYSIOLOGICAL PARAMETERS: The physiological parameters include Heart rate, Respiration, Oxygen Saturation and Blood pressure.

- CHILDREN: Children refers to the child age ranges from 3-12yrs, undergoing Invasive Medical procedure.

- INVASIVE MEDICAL PROCEDURE: It includes IV cannulation and blood sample collection.

HYPOTHESES

H1: There will be a significant change in the physical manifestation of behaviour of Children who received therapeutic play than those who do not receive the therapeutic play.

H2: There will be significant variations in the Physiological parameters of children who receive therapeutic play than those who do not receive the therapeutic play

ASSUMPTION

- Play is a mean to establish trust and cooperation among children during hospitalization.

CONCEPTUAL FRAMEWORK

Theoretical model for this study was based on modified Katherine Kolcaba's Comfort Model (2001). This model comprises of following concepts,

1. Health care needs

Health care needs are defined as the need for comfort arising from stressful healthcare situations or procedures that cannot be met by recipient traditional system.

In this study, the health care need is the Therapeutic play provided to children before they undergo Medical procedures like blood collection and intravenous cannulation.

2. Intervening variables

Intervening variables are defined as interaction forces that influence recipient's perception of total comfort. In the present study, the variables are Age, Sex, Birth order, type of family, invasive medical procedure and previous hospitalization.

3. Nursing Intervention and comfort measures.

Nursing intervention includes providing care of unmet needs.

In the present study the children who were in experimental group was provided the items which are used for medical procedures and other physical comforting by the caregiver. Children were allowed to handle for 15 minutes before procedure. Children who were in control group were managed with physical comforting by the caregiver during medical procedures.

OUTCOME: A significant reduction in the behavioural distress and stable physiological parameters were observed in experimental group than in control group.

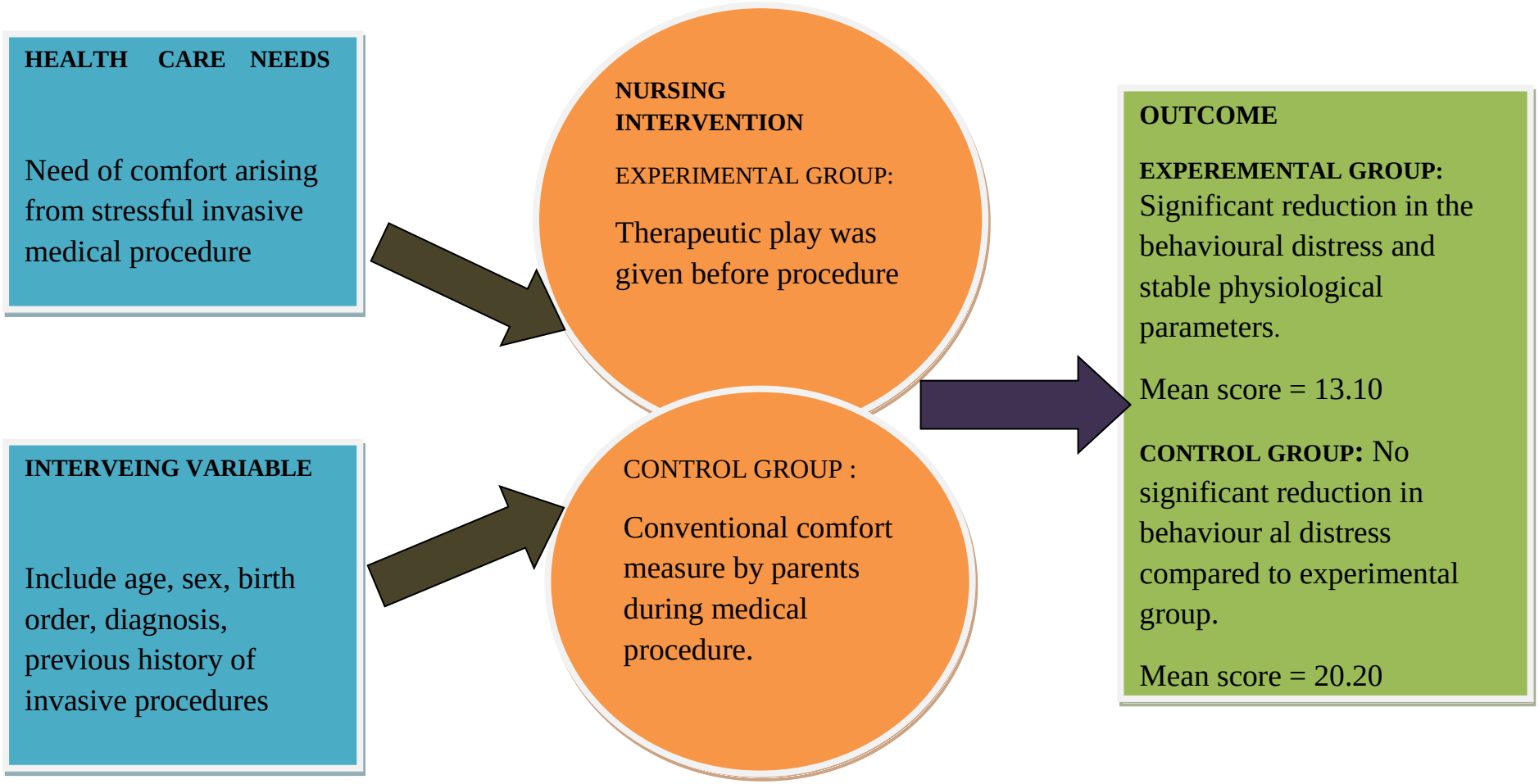

Fig 1. Modified Kathrine Kolcaba's Comfort Model (2001)

CHAPTER 2

REVIEW OF LITERATURE

This chapter deals with the information collected in relation to the present study through published and unpublished materials for foundation to prepare tool and to carry out the research work, related review of literature to research topic was done to collect maximum information for laying foundation for the study.

The children constitute 6-9% of the population under 16 years of age and are at life-long high risk of health and social difficulties. Children have their own ways to express their feelings and the concerns they have for the difficult issues they are trying to cope with. A lot of therapies developed for adults have also been adapted for children to meet their needs. It has been reported that play and social development go hand in hand –one is a vehicle for the other **(Moor 2002).**

A study was conducted with 56 children undergoing bone marrow aspiration and lumbar puncture between age group of 3 – 7 yrs to assess the effects of behavioural and pharmacological interventions on procedural distress and behavioural distress. In their study five children referred for severe anxiety and behavioural distress related to bone marrow aspiration or lumbar puncture, reduced their scores by at least 50% after intervention **(Jay, 1985).**

An experimental study was conducted to assess the distress in children undergoing preparation for painful medical procedures with 43 paediatric cancer patients undergoing bone marrow aspiration. The behavioural approach – Avoidance and distress scale (BAADS) was used to determine behavioural distress during the bone marrow procedure and during early hospitalization. High approach during preparation was related to low distress during the aspiration procedure as well as during early hospitalization **(Nancy Hubert, 2010).**

A randomized control trial was conducted on the effect of cognitive behaviour therapy (CBT) with oral valium for children undergoing medical procedures like bone marrow aspiration and lumbar puncture. Children with age group 3.5 – 12yrs were included in the study in which one group received CBT and other CBT plus valium. Observed behavioural

distress, self reported fear and pain and pulse rate were assessed. CBT was found to be effective in reducing children's distress associated with the painful medial procedure **(Jay, 1999).**

The study of coping is inherently complex. A metaanalysis was conducted to determine the Coping level of children undergoing stressful medical procedures: Some conceptual, methodological, and therapeutic issues. These complexities are magnified in children's coping because a child's ability to effectively appraise a stressor and the coping resources that are available in child's rapidly shifting developmental level. . A small set of recent Paediatric psychology studies describes children's active, informative-seeking coping versus avoidant or information-denying coping as an example of current trends in research on children's coping. There are many therapeutic implications of this research, not the least of which is the problem of how avoidant children should be prepared for medical procedure **(Peterson, 1989).**

An observational behaviour rating scale was developed to measure anxiety responses to bone marrow aspirations in 115 children (mean age 8.6 yrs) with cancer. A significant relationship was found between age and both quantity and type of anxious behaviour. Younger children emitted a greater variety of anxious behaviours over a longer period of time than older children. Females tend to display higher levels of anxiety than did males, across age groups, and to express this with comfort-seeking, as opposed to uncooperative, behaviours **(Katz Ernest, 1980).**

Twenty children with cancer from 3 to 11 years of age and the parent present during the procedure participated in the study. This study examined what parents identified as their primary stressor before their child's invasive procedure, what coping strategies were used to manage the stress, what level of distress their children experienced during each phase of the procedure, and whether parents' coping modes were associated with their children's distress. Parents' primary stressors anticipated the child's distress during the procedure. Children experienced the most behavioural distress during the procedural phase, and girls exhibited more distress than boys. The parents' coping modes were not associated with their children's distress, but children of parents whose primary stressor was uncertainty about parent role had higher distress than children of parents whose primary stressor was anticipating the child's distress **(LaMontagne, 1999).**

The study was designed to examine whether relaxation and analgesia facilitated with hypnosis could reduce distress and procedure time for children who undergo Voiding cystourethrography (VCUG). Forty-four children who were scheduled for an upcoming VCUG were randomized to receive hypnosis (n = 21) or routine care (n = 23) while undergoing the procedure. Children's recruited for the study were those who undergone at least one previous VCUG. Children were queried regarding the degree of crying, fear, and pain that they had experienced during their most recent VCUG. Those who were randomized to the hypnosis condition were given a 1-hour training session in self-hypnotic visual imagery by a trained therapist and were asked to practise it several times a day in preparation for the upcoming procedure. The program includes demonstration of the procedure with dolls, relaxation and breath work training, and assistance during the procedure. Results indicate significant benefits for the hypnosis group compared with the routine care group. Medical staff reported a significant difference between groups in the overall difficulty of conducting the procedure. Total procedural time was significantly shorter-by almost 14 minutes-for the hypnosis group compared with the routine care group **(Butler, 2005).**

A systemic review of the efficacy of music therapy on pain and anxiety in children undergoing clinical procedure was done. A randomized controlled trial among children aged one month to 18 years was conducted among 1513 subjects. Overall, the music therapy showed a significant reduction in pain and anxiety in children undergoing medical and dental procedures. It is considered as an adjunctive therapy on clinical situations that produce pain and anxiety **(Klassen, 2008).**

Forty children between the age 3 – 11 yrs were served as samples to assess the effect of puppet therapy upon the emotional response of children undergoing cardiac catheterization. Twenty samples were assigned randomly in experimental group which received puppet therapy before and after cardia catheterization, twenty were assigned to control group which received the routine treatment. Child who received therapy were less disturbed during cardiac catheterization and expressed more willingness to return to the hospital for further treatment **(Sylvia Cassell, 1965).**

A study was conducted to compare the effect of play on the psychosocial adjustment of hospitalized children for acute illness. Forty six children were placed on four groups: therapeutic play, diversionary play, verbal support, and no treatment. Assessment was done using self report as well as nurse and parent ratings. Children in the therapeutic play

evidenced a significant reduction in self reported hospital fear. Parents of all groups rated that their children's anxious level has decreased from pre – to- post testing **(William, 1988).**

Sixty six children, age 2.5 – 10.5 were assessed for the effectiveness of a combination of three behavioural coping techniques in reducing children's adverse reaction to invasive procedures. The group was divided for one of the following treatment: information only, coping, filmed modelling or coping plus filmed modelling. Their reaction to hospitalization and procedure were assessed using several observational behaviour, physiological and self report technique. Result shows children receiving coping plus modelling technique were more calm and co-operative during invasive procedure than other groups **(Lizette, 2010).**

The effect of therapeutic play on outcomes of children undergoing day surgery was examined using randomised control trial. 203 childrens were allocated in experimental group who received therapeutic play and others in control group who received routine information preparation. Children in experimental group reported significantly lower state of anxiety scores in pre and post operative period and exhibited fewer negative emotions at induction of anaesthesia than children in control group. No significant difference was seen between the two group in post operative pain **(Ho Cheung William, 2007).**

A convenience sample of 100 children, ages 3year 6 months to 12 years 11 months, scheduled for routine blood draws were enrolled in a study. The purpose of this study was to investigate the effectiveness of a distraction technique during a medical procedure. Study confirmed that the experimental group perceived less pain and demonstrated less behavioural distress than the control group using a kaleidoscope during venipuncture **(Vessey, 1990).**

This study investigates a behavioural intervention incorporating parent coaching, attention distraction and positive reinforcement to control child distress during invasive treatment. 23 children requiring physical restraint to complete the venipuncture were assigned randomly to either behavioural intervention or an attention control condition. Children's distress behaviour was recorded and rated by the nurse and the parents were also obtained. Distress was significantly reduced by behavioural intervention and the use of physical restrain to manage child behaviour was also significantly reduced **(Manne, 1990).**

A descriptive exploratory study was conducted with 30 nurses to identify nurse's perception regarding the routine use of therapeutic play in the care of hospitalised child. The

majority had knowledge about the therapeutic play and considered it valid for use in practice. However it was not used in the institutions **(Gabriela, 2012)**.

A comparative study was conducted with 72 school age children to examine which type of activity like medical paly, video on medical information, typical play and non medical information video decreases the amount of fear, anxiety and procedural distress in children undergoing medical procedure and going to visit doctor. Findings revealed that medical information video reduced fear and procedural distress more than medical play group, typical play group and non medical information video group**(Sherwood, 2011).**

Numerous variables that may influence children's distress responses during medical procedures. A convenience sample of 68 children of 4-12 years old and their parents participated in this study. Parents completed questionnaires about their child's temperament, attention behaviour, anxiety, and coping during a medical procedure, and about their own anxiety and parenting style. A coefficient of reliability of the measures was examined and was assessed. A forward regression showed that nurturing parenting style, parent's state anxiety, and child's state anxiety accounted for 32% of the variance in child distress during a recent medical procedure**(Kleiber, 2006).**

In a clinical trial, 75 childrens of 5-12yrs were enrolled in the intervention and the control group. The purpose of the study was to assess the effect of pre-operative play activity in childrens undergoing surgery. Pre and post operative anxiety and distress was assessed which showed childrens attending playroom and using play activities reduce the anxiety level induced by surgical procedures **(Mahmoudi 2008).**

Preschool leukaemia patients of ages 3-5 years were taught to engage in specific coping behaviours before and during painful intramuscular and intravenous injections. Parents were taught to coach their children in the use of the coping behaviours. Intervention was delivered in a multiple baseline across-subjects design. Parent and child behaviour was coded using the Child-Adult Medical Procedure Interaction Scale-Revised (CAMPIS-R) and Observation Scale of Behavioural Distress (OSBD). Parents and nurses also rated child behaviour. Results indicated that parents learned coping-promoting behaviours, children learned specific coping behaviours, and children displayed less behavioural distress. Maintenance of behaviour change was addressed. Contributions of this study to the current

literature on children are coping with invasive medical procedures and implications for future research and clinical practices are discussed **(Powers, 1993).**

An intervention was designed to decrease children's, parents', and nurses' distress during children's immunizations. It consisted of children viewing a popular cartoon movie and being coached by nurses and parents to attend to the movie. Ninety-two children, 4-6 years of age, and their parents were alternatively assigned to either a nurse coach intervention, a nurse coach plus train parent and child intervention, or a standard medical care condition. It was hypothesized that training only the nurses to coach the children would be cost-effective in reducing all participants' levels of distress. Observational measures and subjective ratings were used to assess the following dependent variables: children's coping, distress, pain, and need for restraint; nurses' and parents' coaching behaviour; and parents' and nurses' distress. Results indicate that, children coped more and were less distressed, nurses and parents exhibited more coping promoting behaviour and less distress promoting behaviour, and parents and nurses were less distressed than in the control condition. Therefore, nurses' coaching of children to watch cartoon movies has great potential for dissemination in Paediatric settings. **(Cohen, 1997).**

A quasi-experimental study with 80 children aged 6-12 years selected by purposive sampling , undergone the effect of local refrigeration on pain related response prior to venipuncture after being referred to the Paediatric emergency ward. It was concluded that there was no significant difference between the two groups for physiological response. However, behavioural responses during and after the procedure ($p=0.001$) and subjective responses after the procedure ($p=0.0097$) were significantly low as compared to the control group **(Movahedi, 2006).**

An experimental research study was conducted with childrens from 3- 5yrs of age. The hospitalized children were provided with therapeutic play. The result showed that it helped children behave more according to what is expected of this 3- 5 age group as well as show signs that they had adapted or presented ego strength according to their age group**(Ribeiro, 1991).**

CHAPTER III

METHODOLOGY

This chapter deals with the methods adopted by the investigator to find out the effectiveness of therapeutic play among hospitalized children undergoing Invasive Medical procedures. It deals with research design, variables under study, setting of the study, population, sample size, sampling technique and criteria for sample selection, development and description of the tool, validity and reliability of the tool, procedure for data collection and plan for data analysis.

RESEARCH DESIGN:

The research design for the present study was, Matched control group post test only design. Age and sex were matched.

Diagrammatic Representation:

E : X O1

C : O1

E : Experimental group

O1 : Observation of behavioural distress of children towards invasive medical procedures

X : Therapeutic play

C : Control group

VARIABLES UNDER STUDY

Independent variable : Therapeutic play

Dependent variable : Behavioural distress and physiological parameters

SETTING OF THE STUDY

The study was conducted at Paediatric ward in Kovai Medical Center and Hospital, Coimbatore. It is a 800 bedded NABH accredited super specialty hospital with excellent

health care delivery system for the patients ,which has separate Paediatric ward, around 400-500 children are admitted every month. In general all the children who get admitted are undergoing venipuncture to draw blood, administer medication or I.V fluids.

POPULATION

The population comprises of all children undergoing blood sample collection and IV cannulation for fluid therapy between the age group of 3 – 12 yrs.

SAMPLE SIZE

The sample sizes was 60 children of, 30 in experimental and 30 in control group.

SAMPLING TECHNIQUE

Non probability purposive sampling technique was used to select the samples for the study

CRITERIA FOR SAMPLE SELECTION

INCLUSION CRITERIA

- Children who are conscious and subjected to invasive medical procedure such as blood collection and IV cannulation
- Children of both sex
- Age group between 3-12 yrs

EXCLUSION CRITERIA

- Children who are critically ill
- Children who are mentally challenged

DESCRIPTION OF INTERVENTION

The intervention provided by the investigator was therapeutic play along with parental comfort such as hugging, pacifying, patting etc. for the experimental group. The children were engaged to play with therapeutic play using medical equipments like a stethoscope, BP cuff, mask, gloves, syringe without needle and a dummy for 15 minutes before the procedure. The control group underwent conventional comfort methods by the parents such as hugging, pacifying, patting etc.

DEVELOPMENT AND DESCRIPTION OF THE TOOL

Section A: Background data of children and their parents

Section B: Observation Scale of Behavioural Distress

Section C: Performa for assessing physiological parameter

Section A: Background data

The background data consist of child profile and parent profile. Child profile consists of Age, Sex, Order of birth, Previous history of hospitalization and the Type of medical procedures. Parent profile includes Type of family, Education of parents, Income of the family and No. of siblings

Section C: THE OBSERVATION SCALE OF BEHAVIOURAL DISTRESS (OSBD)

The observation scale of behavioural distress was developed by Jay and Elliott in 1986, to measure children's behavioural response to painful procedures. It was an eleven item scale which was modified and was reduced to eight items after item analysis. The reliability of tool was r = 0.98. There are total of eight items in the OSBD scale such as information seeking, cry, scream, physical and verbal restraint, seeking emotional support, verbal pain and flail. The intensity of each item is measured on the basis of a five point likert scale. Minimum score is eight, maximum score is forty.

The items are scored as follows :-

Never	=	1
Little	=	2
Some what	=	3
Much	=	4
A great deal	=	5

Score interpretation:

8-10	-	Calm
11-16	-	Nervous

17- 24 -. Distress under control

25- 32 - Distress under loss of control

33- 40 - Panic

Section C: Physiological parameters

The physiological measures include the Heart Rate, Respiratory Rate, Blood pressure and Oxygen Saturation

VALIDITY AND RELIABILITY OF THE TOOL

Test-retest reliability of observation scale for behavioural distress was found by Jay and Elliot that correlation, r = 0.98, which shows that the tool is reliable and valid. Content validity was established for background variables and physiological parameters Performa by submitting the tool to subject experts in paediatric nursing and medicine. Based on the expert's suggestion the tool was modified

PILOT STUDY

In order to find out the feasibility of the study, pilot study was conducted. The sample size was 10 children, 5 each in control and experimental who were not included in the main study. The study result was found to be practically feasible.

PROCEDURE FOR DATA COLLECTION

The formal permission to conduct the study was obtained from the chairman of KMCH after ethical clearance from the Ethical committee of the hospital. 60 children were enrolled in the study, 30 in experimental group and 30 in control group. Children were allotted to each group on the basis of criteria of inclusion for the study. The investigator introduced self to the child and parent and provided a brief explanation regarding the purpose of the study, and obtained consent from parent and ascent from child. After that the investigator collected the background data from each child and the parent and assessed the physiological measurements, before the procedure. Therapeutic play (medical equipments) along with parenteral comfort was provided to the children who were in experimental group and they were allowed to handle and manipulate the items for 15 mints before the procedure. The children in the control group were allowed for conventional comfort measures. Immediately after the procedure blood pressure was assessed using sphigmomanometer as

per American Heart Association Guidelines. Children of both groups were observed for behavioural distress using OSBD by the investigator and physiological parameters were noted during the procedure. Physiological parameters were assessed again after the procedure. 5-6 children's were taken each day as per the purpose of the study and were allotted to experimental and control group.

STATISTICAL ANALYSIS

The obtained data were analysed using both descriptive and inferential statistics. Descriptive statistics such as mean, median, standard deviation, and frequency percentile were used to describe the background data. Inferential statistics such as independent "t" test, paired't' test, ANOVA and post hoc multiple comparison were used.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data collected from the samples to determine the effectiveness of therapeutic play on behavioural distress among children admitted at KMCH, Coimbatore. The collected data are grouped and analysed using descriptive and inferential statistics as follows:-

Section A - Distribution of background variables of children and their parent

Section B - Distribution of Behavioural distress score and physiological Parameters of Children.

Section C - Comparison of Behavioural distress level between experimental and control group

Section D - Comparison of physiological parameters of children between the experimental and the control group.

Section E - Comparison of Physiological parameters of children within the group.

Section F - Association of Behavioural Distress level of children with the background variables.

SECTION - A

Table 1: Distribution of background variables of children.

(N = 30+30)

Sl No.	Characteristics	Control Group		Experimental Group	
		f	%	f	%
1.	AGE				
	3 – 6 yrs	10	33.3	10	33.3
	6 – 8 yrs	10	33.3	10	33.3
	9 – 12 yrs	10	33.3	10	33.3
2.	SEX				
	Male	19	63.33	19	63.33
	Female	11	36.66	11	36.66
3.	BIRTH ORDER				
	First	17	56.66	16	53.33
	Second	13	43.33	14	46.66
4.	PREVIOUS HOSPITALIZATION				
	Yes	15	50	16	53.33
	No	15	50	14	46.66
5.	MEDICAL PROCEDURE				
	IV cannulation	15	50	18	60
	Blood collection	15	50	12	40

Table 1 provides a summary of the background characteristic of the children in experimental and control group. There were equal distribution of age and sex in control and experimental group. 56.66% (17) in control group and 53.33% (16) in experimental group were in first order and 43.33% (13) in control group and 46.66% (14) were in second birth order. 50% (15) of children in control group had previous history of hospitalization and 50% didn't had and 53.33% (16) children in experimental group had history of hospitalization and 46.66% (14) childrens didn't had previous hospitalization. 50% (15) children from control group underwent medical procedure like IV cannulation and 50% underwent blood collection. 60% (18) children underwent IV cannulation and 40% (12) underwent blood collection procedure in the experimental group.

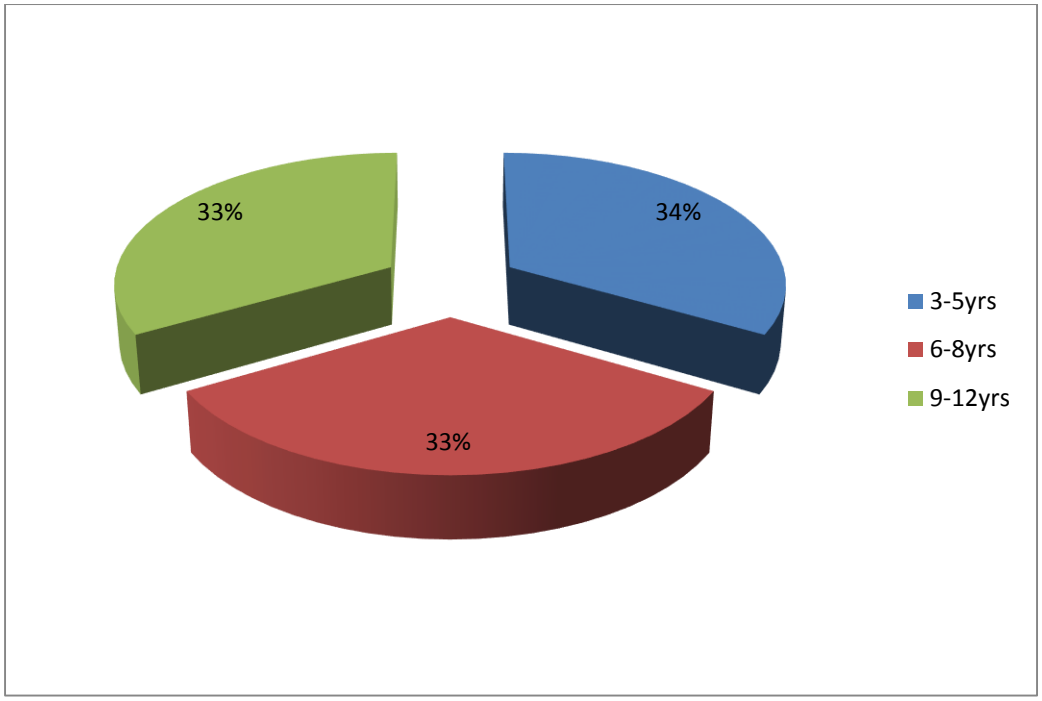

Fig 2: Distribution of children according to their Age in Experimental group.

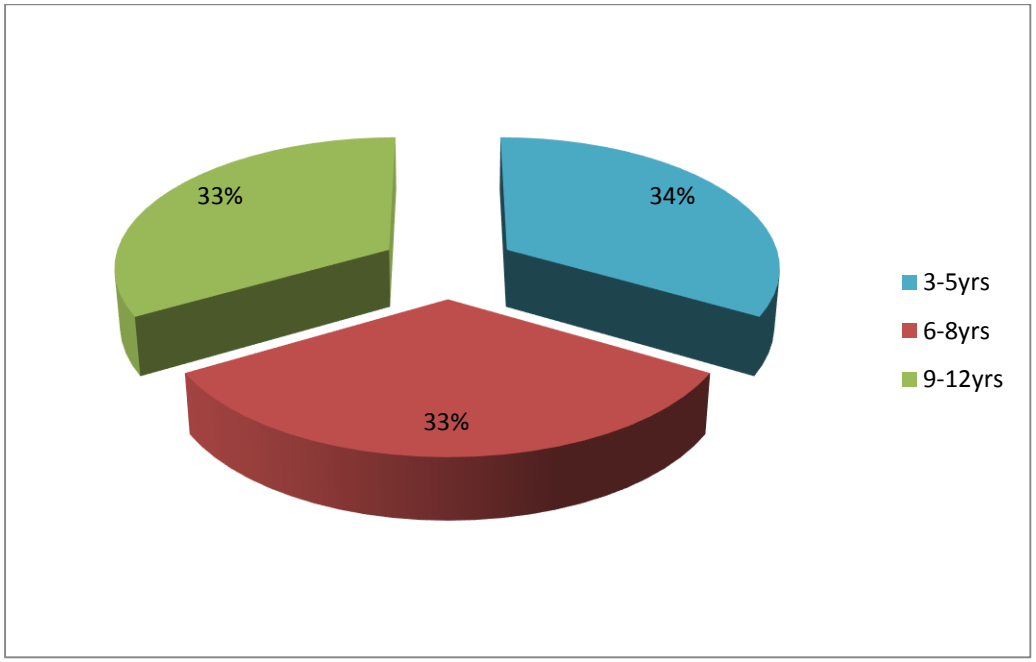

Fig 3: Distribution of children according to their Age in Control group.

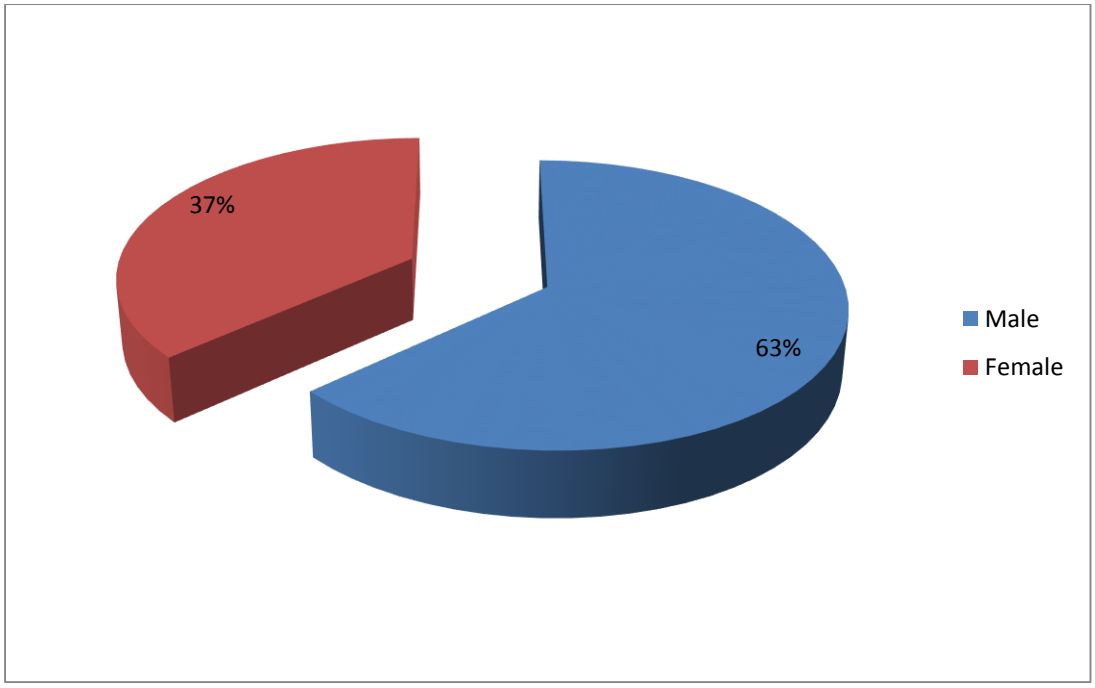

Fig 4: Distribution of children according to their Sex in Experimental group

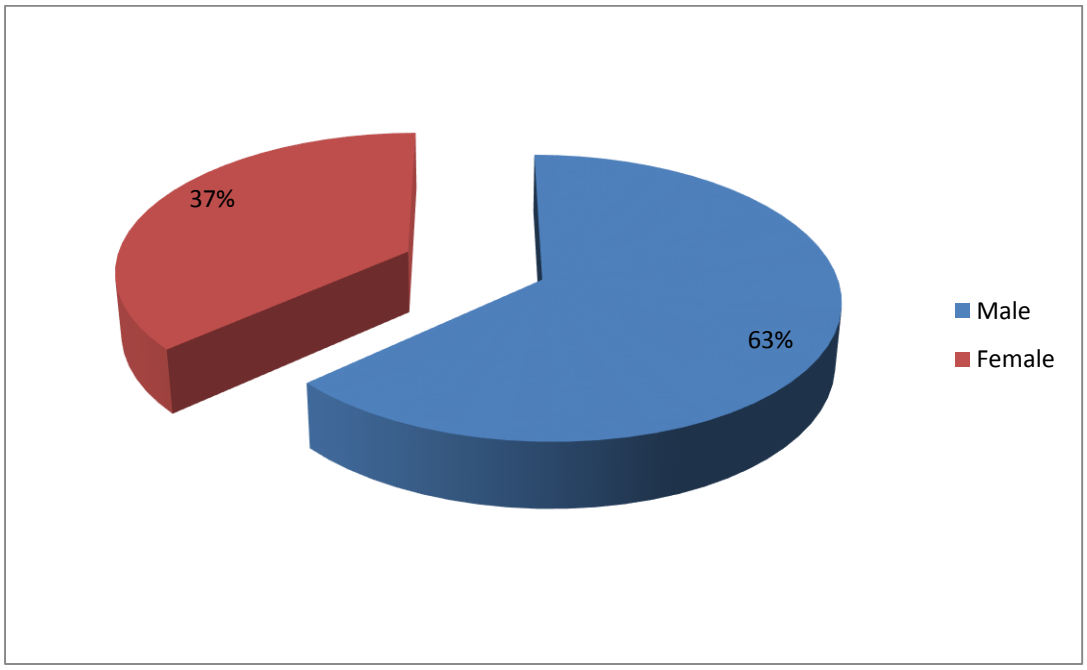

Fig 5: Distribution of children according to their Sex in Control group

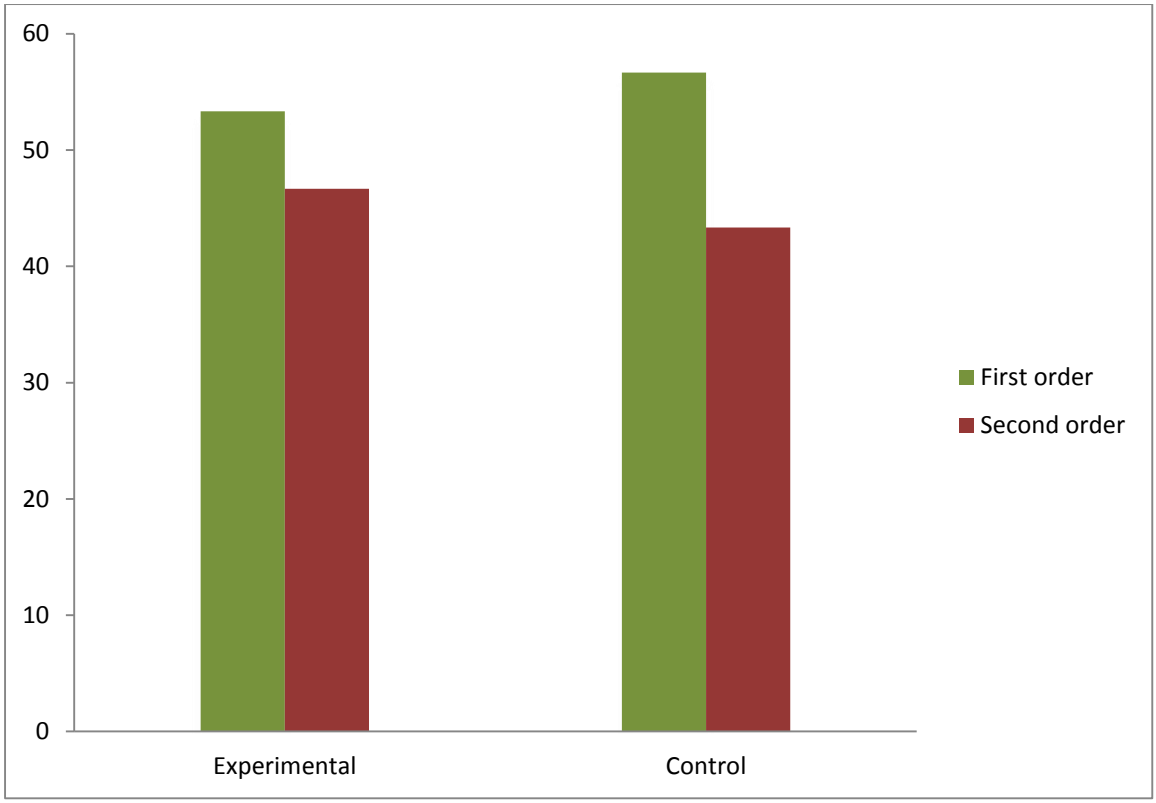

Fig 6: Distribution of children according to their Birth order

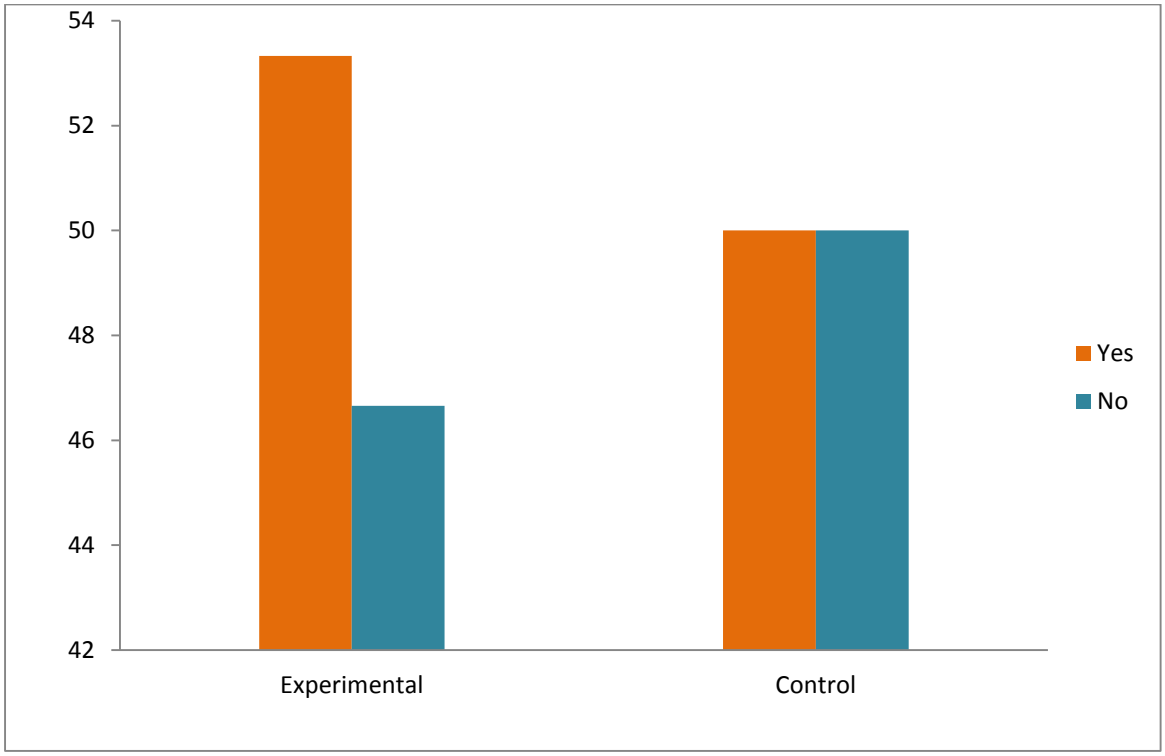

Fig 7: Distribution of children according to their Previous hospitalization

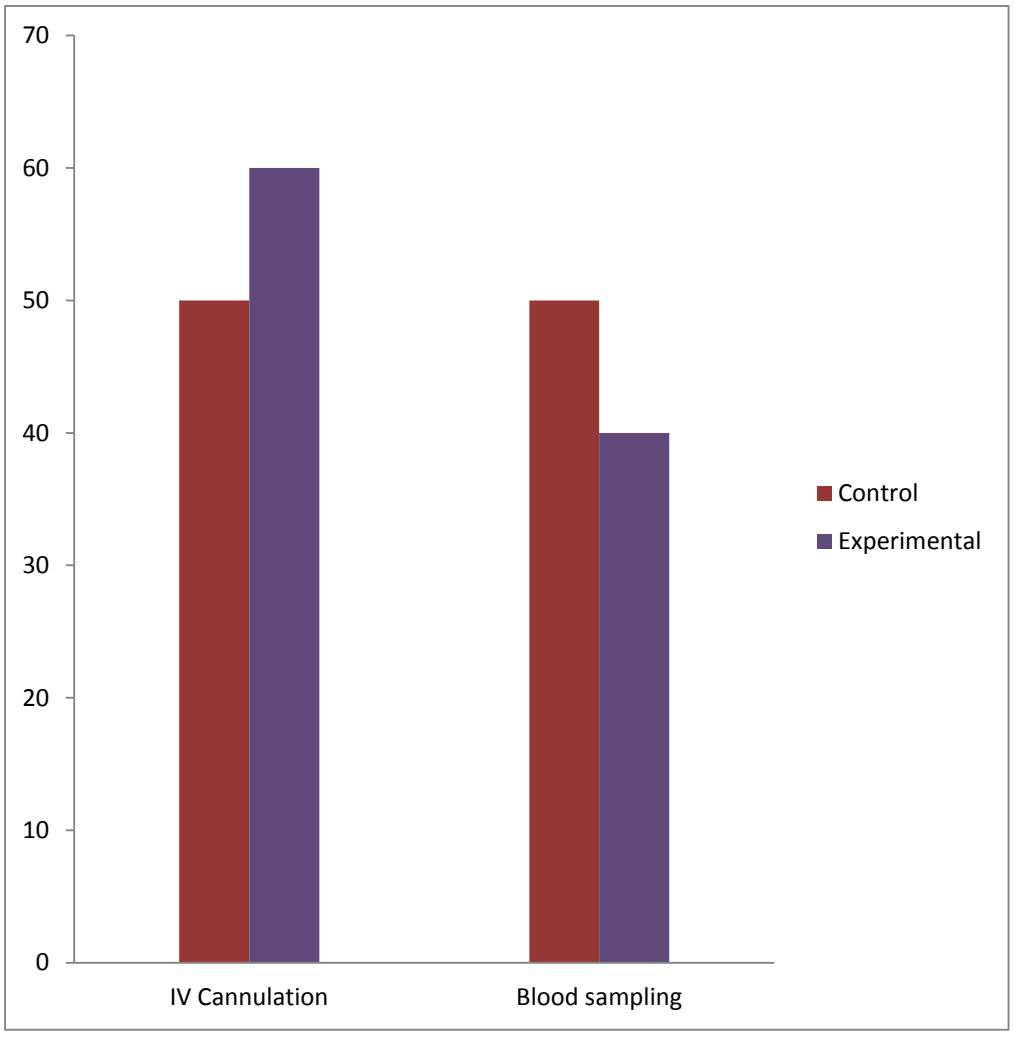

Fig 8: Distribution of Children according to the Medical procedure

Table 2: Distribution of background variable of Parents.

(N = 30+30)

Sl No.	Characteristics	Control Group		Experimental Group	
		f	%	f	%
1.	TYPE OF FAMILY				
	Nuclear	18	60	17	56.66
	Joint	12	40	13	43.33
2.	NO. OF SIBLINGS				
	No	10	33.33	9	29.66
	One	20	69.66	21	69.33
3.	FATHER EDUCATION				
	Primary schooling	13	43.33	10	33.33
	Graduate	14	46.66	17	56.66
	Post graduate	3	10	3	10
4.	MOTHER EDUCATION				
	Primary schooling	16	53.33	13	43.33
	Graduate	13	43.33	17	56.66
	Post graduate	1	3.33	-	-

Table 2 provides a summary of the background characteristic of the parents in experimental and control group. 60% (18) of children are from nuclear family and 40% (12) are from joint family in control group and in experimental group 56.66% (17) are from nuclear family. Majority of the children had one sibling (63.33%), 33.33% had no sibling and 3.33 had two sibling in experimental group. Majority of the parents were well educated in both group.

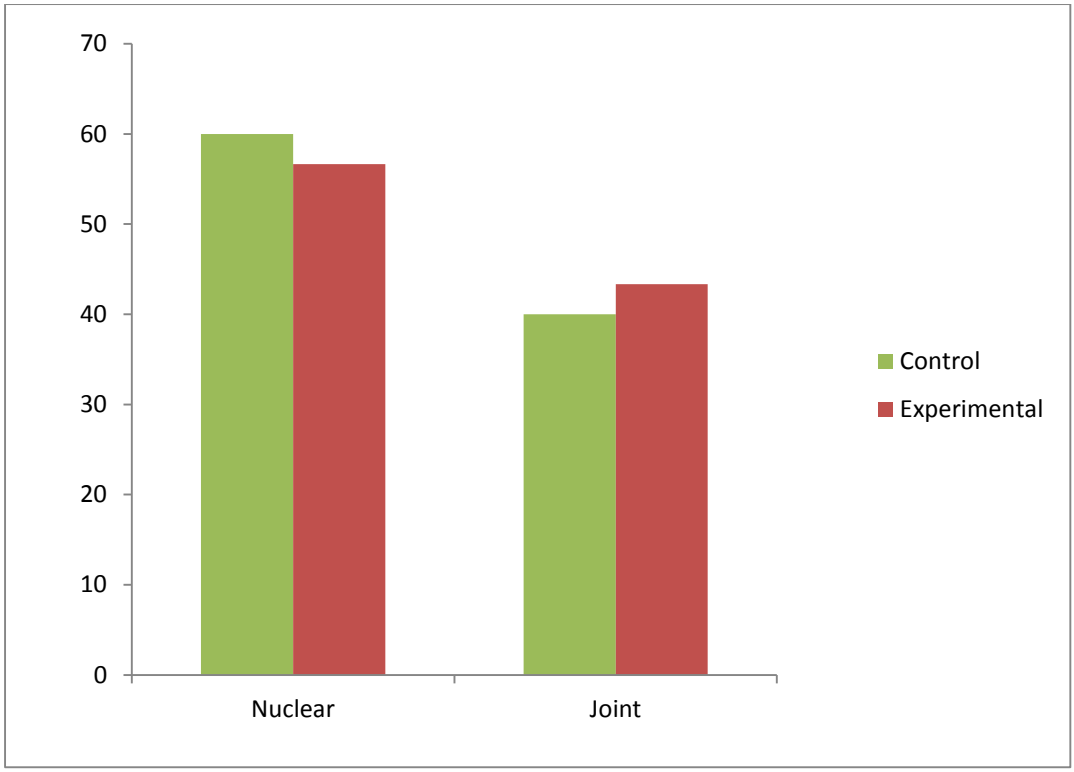

Fig 9: Distribution according to the Type of Family

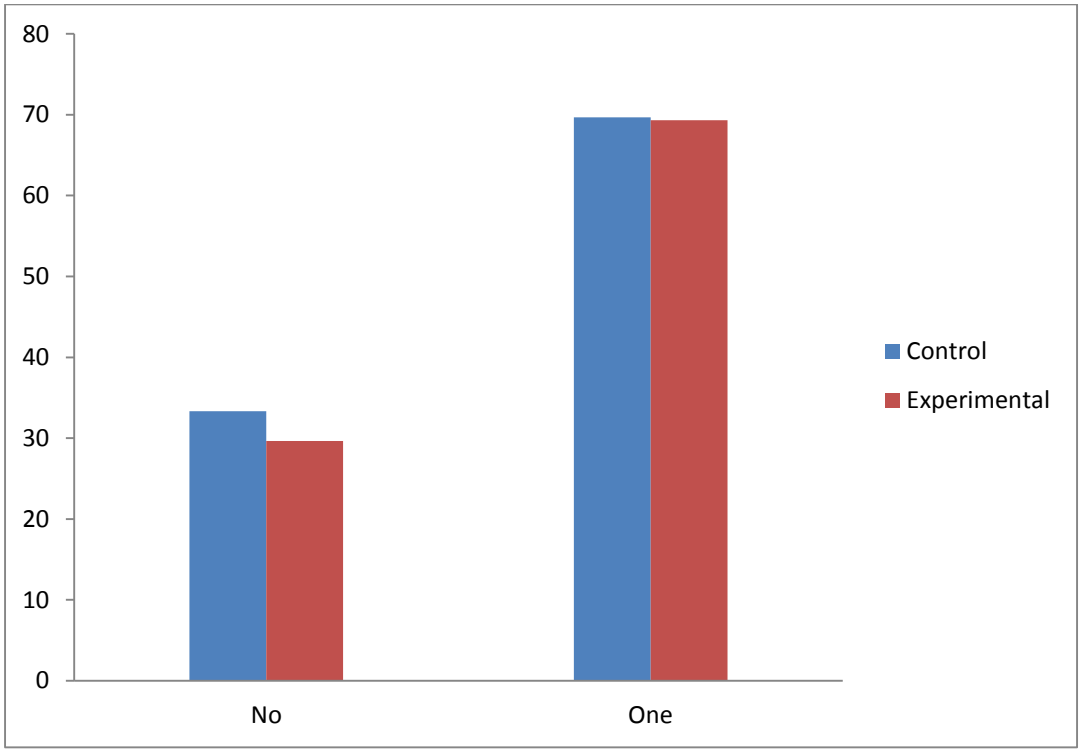

Fig 10: Distribution according to Number of Siblings

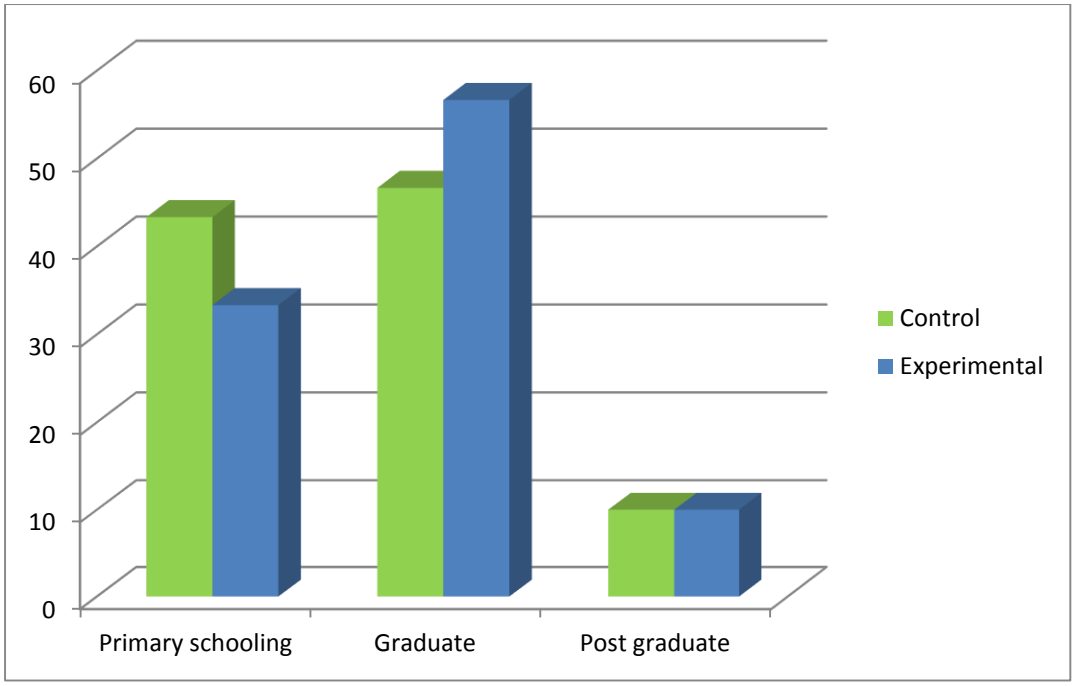

Fig 11: Distribution of Fathers according to their Education

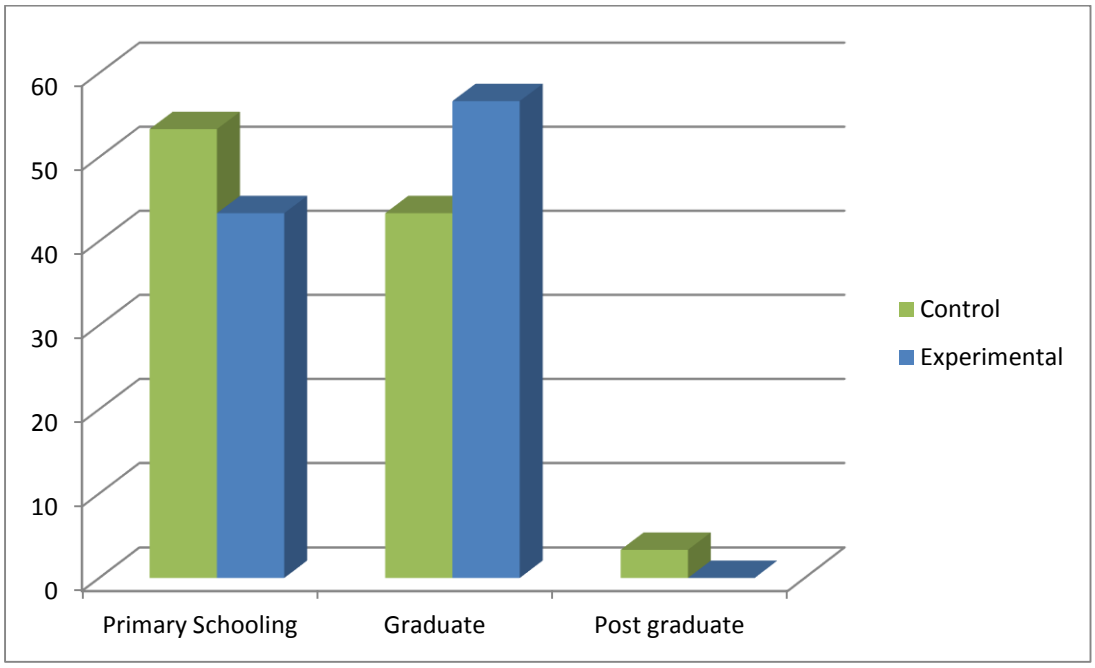

Fig 12: Distribution of Mother according to their Education

SECTION – B

Distribution of Children based on the level of Behavioural Distress and Physiological Parameters

Table: 3 Distribution of child on the basis of OSBD classification

OSBD score Interpretation	OSBD score	Experimental		Control	
		f	%	f	%
Calm	8-10	6	20	0	0
Nervous	11-16	19	63.33	5	16.66
Distress under control	17-24	5	16.66	17	56.66
Distress under loss of control	25-32	0	0	8	26.66
Panic	33-40	0	0	0	0

Table 3 shows the behavioural distress score interpretation of children in experimental and control group. In experimental group 20% (n=6) were calm during the procedure, 63.33% (n= 19) were nervous and 16.66 (n=5) were having distress under control. In control group 16.66% (n=5) were nervous, 56.66% (n=17) had distress under control and 26.66% (n=8) manifested distress under loss of control.

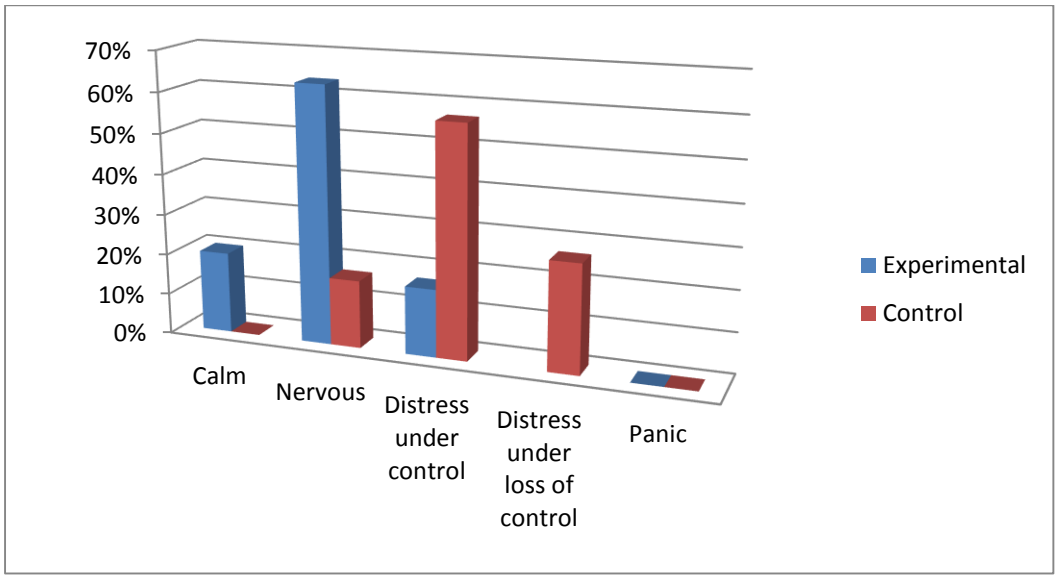

Fig 13: Distribution of children as per their Behavioural Distress Rating

Comparison of mean variations of Physiological Parameters of children in Experimental and Control group with their pre-test and post-test score

Table 4: Mean score of Physiological Parameters

(N=30+30)

Sl No	Group	Mean Heart Rate		Mean Respiratory Rate		Mean Oxygen Saturation	
		Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
1	Experimental	109.53	105.66	24.8	24.6	99.76	100
2	Control	111.26	110.46	25.66	25.33	99.66	100

Table 4 shows the mean values of Physiological Parameters of children in Experimental and the Control group

Table 5: Mean score of Blood pressure

(N=30+30)

Sl No	Group	Systolic BP		Diastolic BP	
		Pre-test	Post-test	Pre-test	Post-test
1	Experimental	106.66	105.33	69	70
2	Control	107	105.33	71.33	71

Table 5 shows the mean values of systolic and diastolic blood pressure of children in Experimental and the Control group

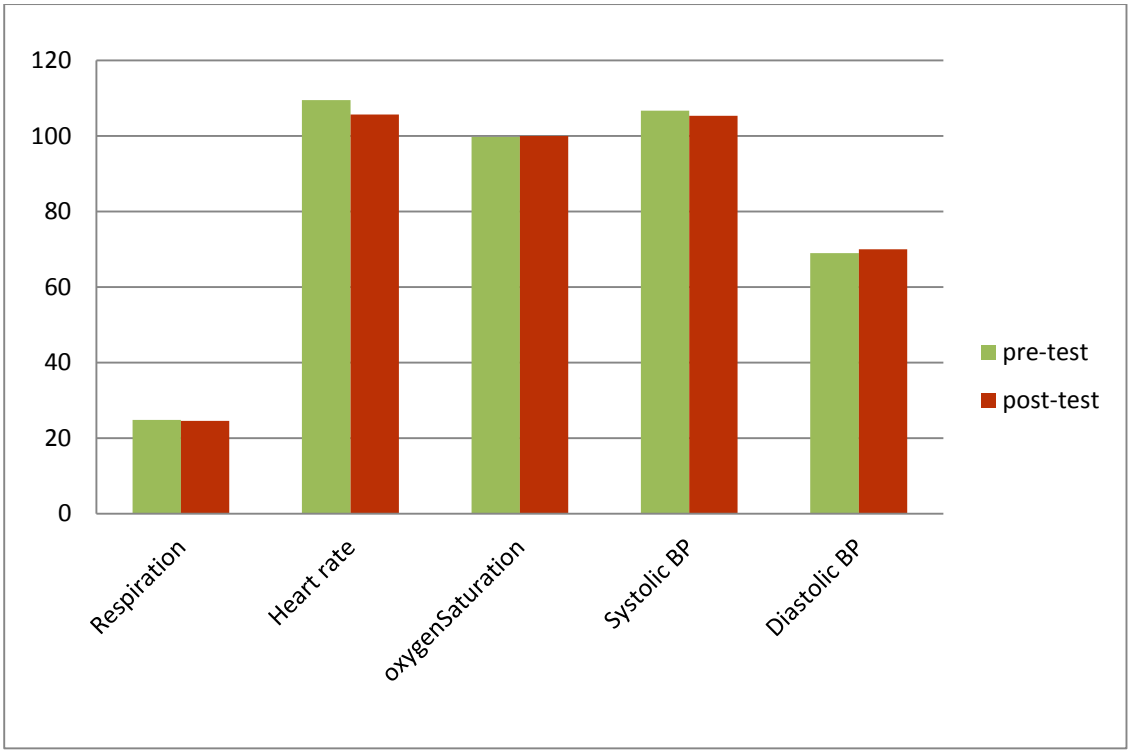

Fig 14: Mean Pre-test and Post-test score of Physiological Parameter in Experimental group

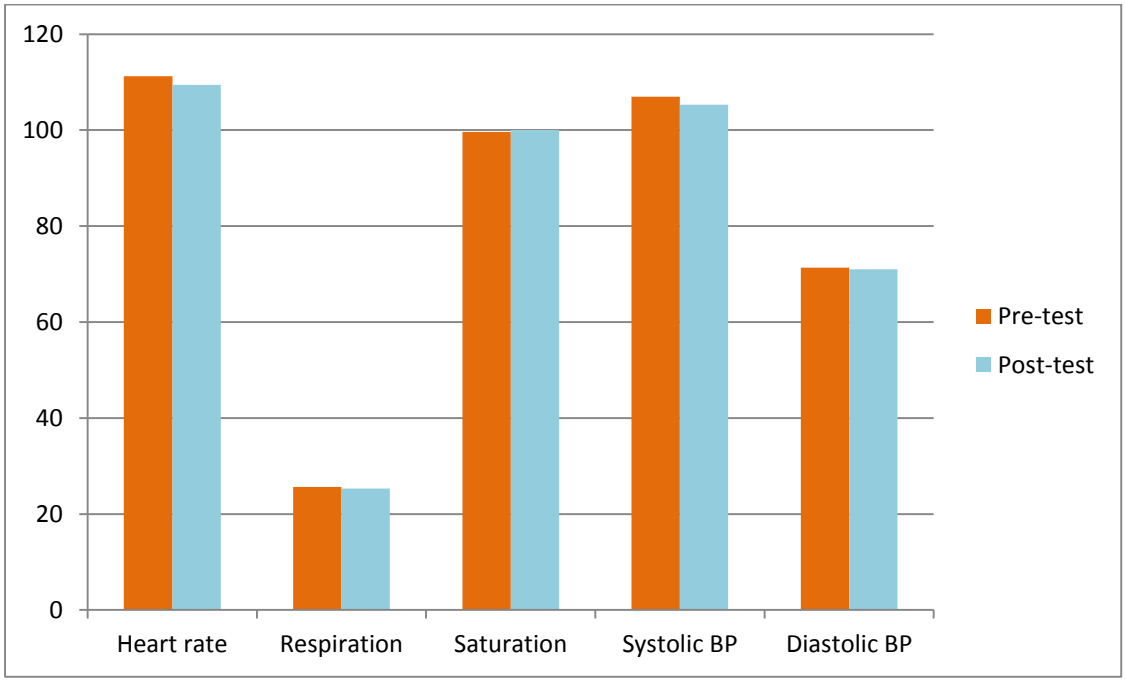

Fig 15: Mean Pre-test and Post-test score of Physiological Parameter in Control group

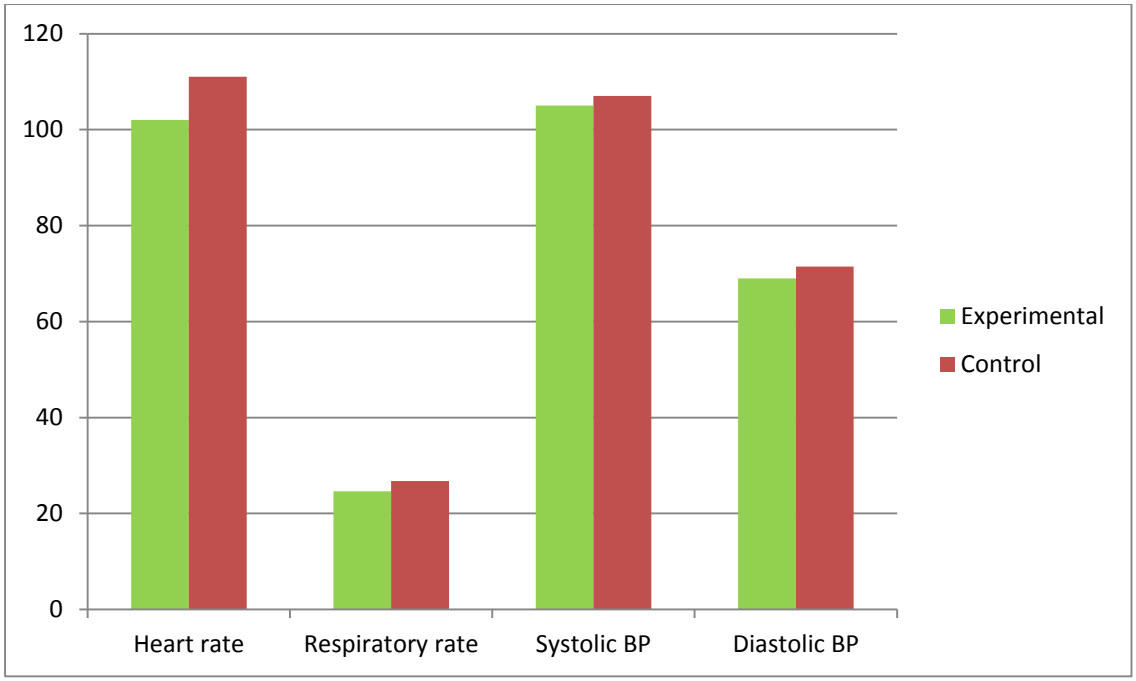

Fig 16: Mean Physiological Parameters of Children during the procedure between Experimental and Control group

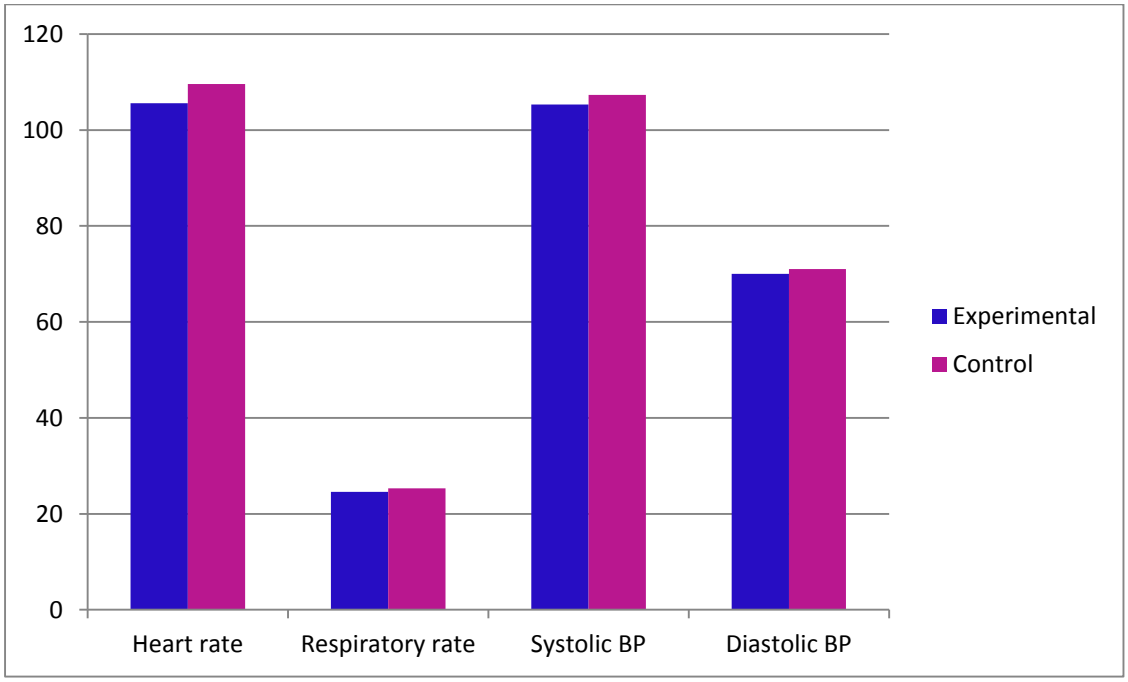

Fig 17: Mean Physiological Parameters of Children post-procedure between Experimental and Control group

SECTION C

Comparison of Behavioural Distress level between Experimental and Control group

Table 6: Comparison of behavioural distress score of children between experimental and control group

(N = 30 + 30)

Sl No	Groups	Mean	Std. Deviation	't'value	significance
1	Experimental	13.10	2.64380	7.12***	0.000
2	Control	20.20	4.77349		

***Significant at p<0.001

Table 6 shows that the obtained independent 't' value on Behavioural Distress was 7.12 and was significant at p<0.001 level, hence there was a significant difference that exist between the experimental and control group on the level of Behavioural Distress.

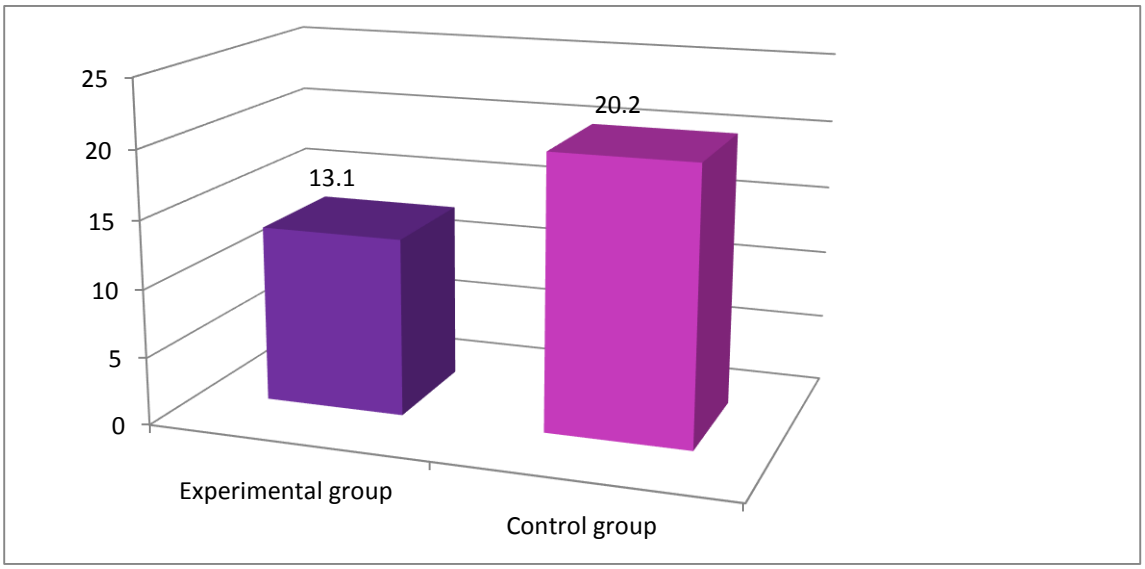

Fig 18: Mean Behavioural distress Score of children in Experimental and Control group

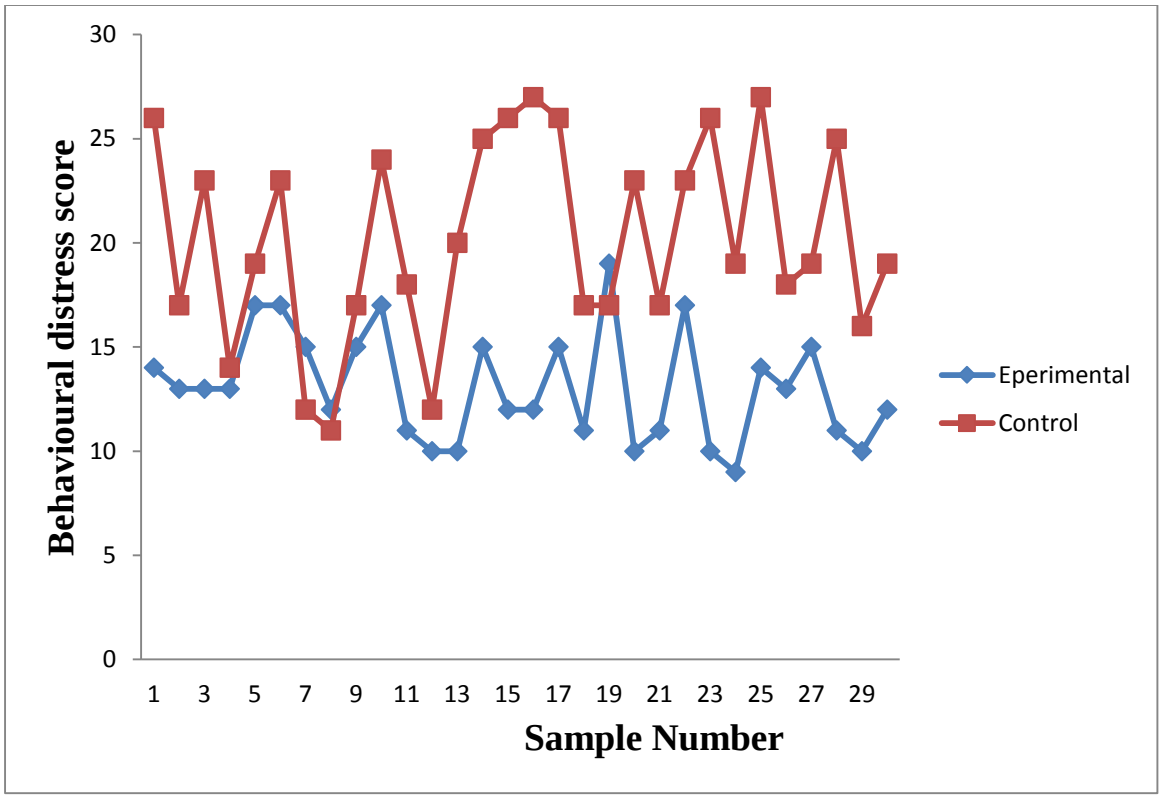

Fig 19: Distribution of samples based on Behavioural distress score

SECTION - D

Comparison of Physiological Parameters of Children between Experimental group and Control group

Table 7: Comparison of Physiological Parameters of Children during procedure

(N= 30 + 30)

Sl No.	Physiological parameters during the procedure	Group	Mean	Std deviation	't' value
1	Heart rate (beats/minute)	Experimental	109.53	11.34	0.65 (NS)
		Control	111.26	9.17	
2	Respiration (Breaths/minute)	Experimental	25.13	3.13	0.841 (NS)
		Control	25.86	3.59	
3	Saturation (%)	Experimental	99.76	0.67	0.53 (NS)
		Control	99.366	0.75	
4	Systolic BP (mmHg)	Experimental	106.66	6.06	0.197 (NS)
		Control	107.00	7.02	
5	Diastolic BP (mmHg)	Experimental	69.00	8.44	1.144 (NS)
		Control	71.33	7.03	

NS = Not Significant

Table 7 shows that the comparison of physiological parameters during the procedure between the experimental and the control group. The obtained 't' value shows that there is no significant difference between the control and the experimental group.

Table 8: Comparison of Physiological Parameters after procedure

(N= 30 + 30)

Sl No.	Post-procedural Physiological parameters	Group	Mean	Std deviation	't' value
1	Heart rate (beats/minute)	Experimental	105.60	10.17	1.55 (NS)
		Control	110.46	9.09	
2	Respiration (Breaths/minute)	Experimental	24.60	2.88	0.83 (NS)
		Control	25.33	3.87	
4	Systolic BP (mmHg)	Experimental	69.00	8.44	1.144 (NS)
		Control	71.33	7.30	
5	Diastolic BP (mmHg)	Experimental	70.00	8.70	0.495 (NS)
		Control	71.03	7.24	

NS = Not Significant

Table 8 shows that the comparison of physiological parameters after the procedure between the experimental and the control group. The obtained 't' value shows that there is no significant difference between the control and the experimental group.

SECTION - E

Comparison of physiological parameters of Children in Experimental group and in Control group.

Table 9: Comparison of Physiological Parameters in Experimental group

(n=30)

Sl No.	Physiological parameters	Observation	Mean	Std deviation	't' value
1	Heart rate (beats/minute)	Pre-test	109.53	11.34	3.35*
		Post-test	105.60	10.17	
2	Respiration (Breaths/minute)	Pre-test	24.80	2.90	0.55 (NS)
		Post-test	24.60	2.88	
4	Systolic BP (mmHg)	Pre-test	106.66	6.06	0.941 (NS)
		Post-test	105.33	5.71	
5	Diastolic BP (mmHg)	Pre-test	69.00	8.44	0.682 (NS)
		Post-test	70.00	8.70	
6	Oxygen Saturation (%)	Pre-test	99.76	0.67	1.882 (NS)
		Post-test	100	0.0	

*Significant at $p<0.05$, NS- Not significant

Table 9 shows the pre-test and post-test comparison of physiological parameters of children in experimental group. Obtained't' value of heart rate was 3.35 which is significant at $p<0.05$. There is a significant change in the heart rate of children after the procedure.

Table 10: Comparison of Physiological Parameters of Children in Control group (n=30)

Sl No.	Physiological parameters	Observation	Mean	Std deviation	't' value
1	Heart rate (beats/minute)	Pre-test	111.26	9.17	1.25 (NS)
		Post-test	110.4	9.09	
2	Respiration (Breaths/minute)	Pre-test	25.66	3.40	1.00 (NS)
		Post-test	25.33	3.87	
4	Systolic BP (mmHg)	Pre-test	107.0	7.02	1.72 (NS)
		Post-test	105.33	6.81	
5	Diastolic BP (mmHg)	Pre-test	71.33	7.30	0.25 (NS)
		Post-test	71.00	7.11	
6	Oxygen Saturation (%)	Pre-test	99.66	0.75	2.40 (NS)
		Post-test	100	0.0	

NS- not significant

Table 10 shows the pre-test and post-test comparison of physiological parameters of children in experimental group. The obtained 't' value is not significant at $p<0.05$. There is no significant change in the physiological parameters of children after the procedure.

SECTION –F

Association of Behavioural Distress level with their Age in Experimental group

Table 11: ANOVA between Age and level of distress

(n=30)

Age	f	Mean	SD	'F' value	Significance
3- 5 years	10	15.10	1.79	8.132*	0.002
6-8 years	10	13.00	2.98		
9-12 years	10	11.20	1.39		

*Significant at P<0.05

The table 11 shows that the calculated 'F' value is 8.132 which was significant at p<0.05. There is significant relationship between Age and Distress

Table 12: Post - hoc Multiple Comparison of Behavioural distress between various Age group

(n= 30)

Age	Mean difference	Std. error	Significance
6-8yrs	2.10		0.114
3-5yrs		0.968	
9-12yrs	3.90		0.002*
3-5yrs	2.10		0.114
6-8yrs		0.968	
9-12yrs	1.80		0.97
3-5yrs	3.90		0.002*
9-12yrs		0.968	
6-8yrs	1.08		0.197

*Significant at P<0.05

Post-hoc Comparison using Scheffe test indicated that there is a significant difference between the mean score of 3-5yrs (mean=15.10) and mean score of 9-12yrs (mean=11.20). it reveals that children with age of 9-12yrs had experienced less behavioural distress as compared to other groups

Table 13: Association of Behavioural Distress level of children with selected background variables in Experimental group

(n=30)

Background variable	Group	Mean	Standard deviation	't' value	significance
Sex	Male	13.10	2.68	4.413	0.062 (NS)
	Female	12.70	2.49		
Birth order	First	13.25	2.049	0.327	0.746 (NS)
	Second	12.92	3.269		
Medical procedure	IV cannula	12.31	2.028	1.811	0.081 (NS)
	Blood collection	14.00	3.038		
Type of family	Nuclear	13.23	2.586	0.431	0.670 (NS)
	Joint	12.77	2.905		
Previous hospitalization	Yes	12.50	2.683	1.347	0.189 (NS)
	No	13.78	2.5169		
Siblings	No	15.00	2.672	1.110	0.344 (NS)
	One	12.60	2.683		

NS= Not significant

Table 13 shows the calculated 't'value, which is not significant . There is no association between level of distress with any of the background variables in experimental group.

Table 14: Association of level of distress with selected background variables in control group

(n=30)

Background variable		Mean	Std deviation	F value	Significance
Age	3-5yrs	25.00	1.632	15.554***	0.000
	6-8yrs	20.50	3.064		
	9-12yrs	19.50	2.601		

***Significant at p<0.001

Table 14 shows the calculated ANNOVA value for age. Age has significant association with behavioural distress at p<0.001

Table 15: Post- hoc multiple comparison of behavioural distress between various age group

Age	Mean difference	Std. error	Significance
6-8yrs	4.50		0.002
3-5yrs		1.120	
9-12yrs	9.90		0.000***
3-5yrs	4.50		0.002
6-8yrs		1.120	
9-12yrs	5.40		0.000***
3-5yrs	9.90		0.000
9-12yrs		1.120	
6-8yrs	5.40		0.000***

***Significant p<0.001

Post-Hoc Comparison using Scheffe test indicated that there is a significant difference between the mean score of 3-5yrs (mean=25.00), 6-8yrs (20.50) and mean score of 9-12yrs (mean=19.50). It reveals that children with all age group experienced behavioural distress.

Table 16: Association of level of distress with selected background variables in control group

(n=30)

Background variable	Group	Mean	Standard deviation	't' value	Significance
Sex	Male	18.63	4.751	2.587	0.015 (NS)
	Female	22.90	3.562		
Birth order	First	21.17	4.558	1.296	0.205 (NS)
	Second	18.92	4.927		
Medical procedure	IV cannula	19.26	7.343	0.253	0.802 (NS)
	Blood collection	19.80	3.569		
Type of family	Nuclear	19.26	4.267	1.074	0.292 (NS)
	Joint	21.13	5.208		
Pre hospitalization	Yes	20.60	4.866	0.411	0.684 (NS)
	No	19.86	4.897		
Siblings	No	6.02	1.274	1.147	0.333 (NS)
	One	5.07	1.163		

NS= Not significant

Table 16 shows that the calculated 't' value. There is no association between level of distress with background variables in control group

CHAPTER V

DISSCUSION, SUMMARY, CONCLUSION, IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS

This chapter deals with the discussion, summary and conclusion. It also clarifies the limitations of the study, implication and recommendations given for the different areas of nursing practice, nursing education, nursing administration and nursing research.

Pain and fear are often under treated in children. A child becomes more distress for painful procedures and responds to these experiences according to the developmental stage. The nurse should be aware about the child's behaviour responses to painful invasive procedures.

Therapeutic play is a proven effective psychological approach to reduce the distress in children. Making the children familiar with the medical equipments that will be used by the medical practitioners helps to reduce the distress level in children during the procedure. In this study the researcher has made an attempt to identify the effectiveness of therapeutic play in reducing their distress level among children undergoing invasive medical procedure.

DISCUSSION

The present study was designed to assess the level of behavioural distress among children undergoing invasive procedure. The investigator adopted Matched control post test only research design. The researcher used Non-probability purposive sampling technique to select the 60 subjects and from the 60 subjects, 30 subjects were in the experimental group and 30 and in the control group. The data collected for the study were analysed statistically and discussed below based on the objectives.

According to Age and Sex both group were matched. Regarding birth order 17 children (56.66%) in control group and 16 children (53.33%) in experimental group had first birth order and 13 children (43.33%) in control group and 14 children (46.66%) in experimental group had second birth order. On the basis of number of siblings, children in the experimental groups were 21 (69.33%) and in control group were 20 (69.66%) who had one siblings. 9children (29.66%) in experimental group and 10 children (33.33%) in control group had no siblings. With respect to the type of family, 18 children (60%) in the control group and 17 children (56.66%) in the experimental group belonged to nuclear

family. However, 12 children (40%) in control group and 13 children (43.33%) in experimental group were from joint family. Regarding previous hospitalization status, 15 children (50 %) in the control group and 16 children (53.33%) in the experimental group had previous history of hospitalisation. As in medical procedure, 15 children (50%) in control group and 18 children (60%) in experimental group underwent IV cannulation and 15 children (50%) in control group and 12 (40%) in experimental group underwent blood collection procedure. Majority of the parents were well educated in both control and experimental group.

The first objective of the study was to assess the Behavioural distress of children undergoing Invasive Medical Procedures

According to observational score for behavioural distress, in experimental group 20% (n=6) were calm during the procedure, 63.33% (n= 19) were nervous and 16.66 (n=5) were having distress under control. In control group 16.66% (n=5) were nervous, 56.66% (n=17) had distress under control and 26.66% (n=8) manifested distress under loss of control.

Physiological parameters were assessed during and after the procedure. In experimental group mean Heart rate during the procedure was 109.53 and after was 105.66, mean respiratory rate during procedure was 24.8 and after was 24.6, mean oxygen saturation was 99.76 during the procedure and 100 after the procedure, mean systolic BP was 106.66 during the procedure and 105.33 after the procedure, mean diastolic BP was 69 during the procedure and 70 after the procedure.

In control group Heart rate during the procedure was 111.26 and after was110.46, mean respiratory rate during procedure was 25.66 and after was 25.33, mean oxygen saturation was 99.66 during the procedure and 100 after the procedure, mean systolic BP was 107 during the procedure and 105.33 after the procedure, mean diastolic BP was 71.33 during the procedure and 70 after the procedure

The result of the present study substantiated with the result of the study by **Zahr (1998)** on reducing anxiety and distress of children undergoing surgery. The purpose of the study was to determine the effectiveness of therapeutic play in reducing anxiety and increasing more cooperation among preschoolers undergoing surgery. The group who received therapeutic play were found to be calmer which was evident by comparing means of upset

scale, were 't' value was 5.08 significant at $p<0.001$. Therapeutic play indicated significant in reducing distress and anxiety in children and gain more cooperation for the procedure .

The second objective of the study was to compare the effectiveness of therapeutic play on Behavioural distress of children in experimental and control group

The behavioural distress level among both groups was compared by using independent 't' test. The mean Behavioural distress score was 13.10 for experimental group amd 20.20 for control group, which clearly reveals that controlled group experienced more distress during the procedure. The independent "t" test is 7.12 which is significant at $P<0.001$. It reveals that there was a significant difference in Behavioural Distress between the experimental and control groups, it means that therapeutic play is effective in reducing behavioural distress among children undergoing invasive procedure. The children in experimental group experienced less distress as compared to control group and was significant at $p<0.001$

The result of the present study is supported by **Valarmathi, (2014).** She assessed the effectiveness of therapeutic play on anxiety of children undergoing nebulization among 40 preschoolers. The mean anxiety score of the experimental group was 4.5±1.2 and of control group was 7.9±0.78, which reveals that the therapeutic play was an essential intervention to reduce anxiety and stabilize the physiological parameters in children undergoing nebulization.

The third objective was to compare the effectiveness of therapeutic play in Physiological parameters of children in experimental and control group

The obtained Physiological Parameters were computed by independent 't' test, showed that the Heart Rate, Respiratory Rate, Saturation and blood pressure were not significant during the procedure as well as after the procedure between the experimental and the control group.

The computed 't' value for heart rate was 0.65, respiratory rate the value was 0.841, saturation 0.53, systolic BP 0.197 and diastolic BP it was 1.144. . The obtained 't' value shows that there was no significant difference between the control and experimental group.

Post-procedural Physiological Parameters was not significant when it was compared with experimental and control group. For heart rate 't' value was 1.55, respiratory rate the value was 0.83, systolic BP 1.144 and diastolic BP it was 0.495. The obtained 't' value shows that there is no significance between the control and the experimental group.

Physiological parameters were assessed within the group using paired 't' test in experimental group and control group. Heart rate was found to be significant in the experimental group at significance level of $p<0.05$.

In experimental group the obtained 't' value when compared during and after the procedure were, 3.35for heart rate, 0.55 for respiration, 0.941 for systolic BP, 0.682 for diastolic BP and 1.882 for oxygen saturation.

In control group comparison of physiological parameters were not significant. The obtained 't' value are 1.25 for heart rate, 1.00 for respiration, 1.72 for systolic BP, 0.25 for diastolic BP and 2.40 for oxygen saturation.

The fourth objective was to associate the level of Behavioural distress with selected background variables of children in experimental and control group

The association between level of Behavioural distress with Age in experimental group, the 'F' value was 8.132 and in control group, 'F' value was 15.554 which was significant at $p<0.05$. There was no association exists between background variables like sex, birth order, number of siblings, medical procedure, type of family, and previous hospitalization in experimental and control group.

Post Hoc multiple comparison between Age with the Behavioural Distress in experimental group showed that children with 9-12 years of age experienced less distress as compared to 3-5yrs and 6-8 yrs.

Post Hoc multiple comparison between Age with the Behavioural Distress in control group showed that children in all age group experienced distress.

SUMMARY

The study was conducted to assess the effectiveness of Therapeutic play on Behavioural Distress and selected Physiological Parameters of children undergoing invasive medical procedures at KMCH, Coimbatore. It was conducted in Paediatrics wards at KMCH, Coimbatore, following formulated objectives.

The objectives of the study were to:

1. Assess the Behavioural distress and physiological parameters of children undergoing Invasive Procedures
2. Compare the effectiveness of therapeutic play on Behavioural distress of children in experimental and control group.
3. Compare the effectiveness of therapeutic play on Physiological parameters of children in experimental and control group
4. Associate the Behavioural distress of children with selected background variables of children undergoing invasive procedures in experimental group
5. Associate the Behavioural distress of children with selected background variables of children undergoing invasive procedures in control group.

Review of literature and related articles helped to carry out the study. The investigator adopted Matched control post test only design for conducting the study. The conceptual frame work was based on modified Katherine Kolcaba's comfort model (2001). The tool used for the data collection was observation scale for behavioural distress. The content validity of the tool was obtained from nursing and medical experts. Pilot study was conducted to find the feasibility of the study. The main study was conducted for a period of 6 weeks at KMCH , Coimbatore. The data collected were organized, analyzed and interpret by using inferential and descriptive statistics.

Major findings of the study:

- The mean behavioural distress score of children between 3-5yrs, 6-8yrs and 9-12yrs were 15.10, 13.00 and 11.20 respectively in experimental group and for control group was 25.00, 20.50 and 15.10 for 3-5yrs, 6-8yrs and 9-12yrs respectively.
- In experimental group 20% children (n=6) were calm during the procedure, 63.33% (n= 19) were nervous and 16.66 (n=5) were having distress under control and in control group 16.66% children (n=5) were nervous, 56.66% (n=17) had distress under control and 26.66% (n=8) manifested distress under loss of control, no one was calm.
- The obtained 't' value 7.12 showed that there was a significant difference ($p<0.001$) in level of behavioural distress among experimental and control group.
- Physiological parameters were compared between the experimental and the control group which didn't show any significant difference between the group.

- Physiological parameters were compared within the group in which heart rate was found significant with 't' value 3.35 in experimental group and other parameters didn't show any significant difference within the group
- Association between age and level of Behavioural distress using ANOVA in experimental group showed a significant difference ($p<0.05$) in which the F value was 8.132 and in control group was 15.554 at significant level $p<0.001$.
- Post Hoc multiple comparison between age group in experimental showed that children with 9-12 years of age had experienced less behavioural distress as compared to 3-5yrs and 6-8 years.

CONCLUSION

The following conclusions are drawn from the study.

- The level of behavioural distress during procedure decreased after intervention with therapeutic play 't' value 7.12 which was significant at $p<0.001$. It shows that intervention was effective in reducing behavioural distress among children in experimental group than the control group.
- Younger children experienced more behavioural distress than the older children

IMPLICATIONS

The present study findings has several implications in nursing practice, nursing education, nursing administration and nursing research

Nursing practice

- Increased attention must be directed in assessing behavioural distress of children undergoing painful medical procedures and understanding the developmental difference in behaviour with different age group.
- Increased attention must be directed that the nurses should understand the different aspects of gaining cooperation from children undergoing invasive procedure and has to practice independently.
- The present study showed that the use of therapeutic play reduces the level of behavioural distress among children undergoing invasive medical procedures which can be implemented in practice setting.

Nursing Education

- The nurse educator can create awareness among nurses and other health care professionals about the importance of therapeutic play in reducing the level of behavioural distress among children undergoing invasive medical procedures and utilize the evidence based practice.
- The nurse educator can motivate the nursing personnel and students to use of therapeutic play among children in clinical area

  The study helps to provide knowledge in assessing and documenting children's response to painful invasive medical procedures.

Nursing Administration

- Nurse administrator can disseminate the research knowledge to the nurses working in the paediatric wards.
- Nurse administrator can plan and organize seminars, workshops and conferences about therapeutic play among children undergoing invasive medical procedures and also during hospitalization.
- Nurse administrator can formulate protocol to incorporate the study findings in nursing intervention.

Nursing Research

- This study provides a basis for further studies.

This study favours for updating the knowledge and proper utilization of resources in the field of nursing practice.

LIMITATIONS

- Procedures were not matched for the study.
- Individual pain tolerance varies which is not under the control of the investigator.
- Pain inflicted by a professional varies which is not under the control of the investigator.

RECOMMENDATIONS

- A similar study can be conducted with a large number of children.
- A similar study can be conducted with single procedure.
- A study can be conducted in different settings.

- A comparative study may be conducted to assess the effectiveness of therapeutic play Vs video assisted teaching in the reduction of behavioural distress among children undergoing invasive procedures.
- A similar study can be done among children undergoing bone marrow aspiration or lumbar puncture

ABSTRACT

"Effectiveness of therapeutic play on behavioural distress and selected physiological parameters of children undergoing invasive medical procedures at KMCH Coimbatore"

Objectives of the study were to assess the Behavioural distress of children undergoing Invasive Procedures, compare the effectiveness of therapeutic play on Behavioural distress of children in experimental and control group. Compare the effectiveness of therapeutic play in Physiological parameters of children in experimental and control group**,** associate the Behavioural distress with selected background variables of children undergoing invasive procedures in experimental group**,** associate the Behavioural distress with selected background variables of children undergoing invasive procedures in control group**. Design was** matched control post test only design. **Conceptual Frame Work used for** the study was based on modified Katherine Kolcaba's comfort model (2001). **Setting** of the study was Paediatric wards of Kovai Medical Center and Hospital, Coimbatore. **Sample** enrolled in the study was60 children, 30 children in experimental and control group. For **Data Collection** A formal permission was obtained from Chairman and hospital authority. The respondents were selected on non purposive sampling technique. After maintaining a good rapport with the parent and children, the required data were collected after implementing the intervention. **Result** shows that the mean OSBD score of the experimental group was 13.10 and for the control group was 20.20. the 't' test score was 7.12, which was significant at $p<0.001$ level. It means that there was a significant effect of therapeutic play in reducing the level of behavioural distress in children undergoing invasive medical procedure but physiological variations were not noticed between the groups.

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APPENDIX – A

BACKGROUND VARIABLE OF THE CHILD

Sample no. :

1. Age of the child :
   a. 3-5yrs ☐
   b. 5-7yrs ☐
   c. 7-9yrs ☐
   d. 9-12yrs ☐

2. Class of study : ☐

3. Sex :
   a. Male ☐
   b. Female ☐

4. Order of birth :
   a. First ☐
   b. Second ☐
   c. Third ☐

5. History of previous hospitalization
   a) Yes ☐
   b) No ☐

BACKGROUND PROFILE OF PARENTS

1. Type of family
   a) Nuclear ☐
   b) Joint ☐
2. No. of siblings
   a) No ☐
   b) One ☐
   c) Two ☐
   d) > two ☐

3. Education

i. Father
   a) Primary schooling ☐
   b) Graduate ☐
   c) Post graduate ☐

ii. Mother
   a) Primary schooling ☐
   b) Graduate ☐
   c) Post graduate ☐

4.Income
   a) < Rs 5000/month ☐
   b) Rs 5000-10000/month ☐
   c) > Rs 10000/month ☐

APPENDIX – B

OBSERVATION SCALE OF BEHAVIOURAL DISTRESS (Jai and Elliott, 1986)

Category	***Definition***	**1**	**2**	**3**	**4**	**5**
Information seeking	Any question regarding medical procedure					
Cry	Crying sound and/or onset of tears					
Scream	Loud vocal expression at high pitch					
Restraint	Child must be physically held down by member of staff or parent					
Verbal resistance	Any verbal expression of delay, termination, resistance; must be intelligible					
Emotional support	Verbal or non-verbal; seeking hugs, hand holding; physical or verbal comfort by child					
Verbal pain	Any word, phrase or statements referring to pain or discomfort					
Flail	Random, gross movements of arms and legs or whole body; flail in response to restraint					

1- Never
2- Little
3- Some what
4- Much
5- A great deal

APPENDIX - C

PERFORMA FOR PHYSIOLOGICAL MEASURES

SAMPLE No. :

AGE:

Physiological parameters	Procedure		
	Before procedure	During procedure	After procedure
HEART RATE			
RESPIRATION			
BLOOD PRESSURE			
SATURATION			

APPENDIX – D

Therapeutic play articles used for intervention:

APPENDIX - E

K M C H COLLEGE OF NURSING

(Recognised by the Government of Tamil Nadu & Indian Nursing Council New Delhi)
Affiliated to the Tamil Nadu Dr. MGR. Medical University, Chennai
K.M.C.H. Campus, Avanashi Road, Coimbatore - 641 014. INDIA
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26-09-2013

To

Dr. K. Rajendran, M.B.B.S., M.D.,(Paed)
Consultant Paediatrician & Neonatologist,
Kovai Medical Center and Hospital
Coimbatore - 14

Dear Sir,

Greetings to you from KMCH College of Nursing.

This is to bring to your kind notice that one of our M.Sc(N) final year students by name Ms. Preeja Philip specializing in Paediatric Nursing in our College desires to conduct a study entitled " A study to assess the effectiveness of therapeutic play on behavioural distress and selected physiological parameters of children undergoing medical procedures at Kovai Medical Center and Hospital, Coimbatore" as part of her M.Sc(N) curriculum.

As she is in need of Medical Expert to complete the study, I request you to guide the student.

Thanking you

Yours Truly,

Prof. DR. S. Madhavi, M.Sc(N)., Ph.D.,
Principal

The Principal,
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Coimbatore - 14

Administrative Office :
Kovai Medical Center Research & Educational Trust
K.M.C.H. Campus, Avanashi Road, Coimbatore - 641 014.
Ph : (0422) 4323721, Telefax : (0422) 2627196 E-mail : info@kmch.ac.in Website : www.kmch.ac.in

APPENDIX - G

KMCH ETHICS COMMITTEE

KOVAI MEDICAL CENTER AND HOSPITAL LIMITED

Post Box No. 3209, Avanashi Road, Coimbatore - 641 014. INDIA

✆ : (0422) 4323800 Fax : (0422) 4270805

APPROVED

EC Registration Number
ECR/112/Inst/TN/2013

Ref: EC/AP/271/09/2013

24.09.2013

To:

The Principal,
KMCH College of Nursing,
Coimbatore - 641 014
Tamilnadu, India.

Dear Madam,

The proposal entitled "**A Study to assess the Effectiveness of Therapeutic Plays on Behavioural Distress and Selected Physiological Parameters of Children undergoing Invasive Procedures at Kovai Medical Center and Hospital, Coimbatore.**" submitted by **Ms.Preeja Philip** under guidance of **Prof.Mariammal Pappu, HOD, Dept of Child Health Nursing** was reviewed by the Ethics Committee in its meeting held on 21.09.2013 and permission is granted to carryout the study at Kovai Medical Center and Hospital Ltd, Coimbatore, India.

Thanking you,

Yours faithfully,

24/9/13

Dr. P. R. Muthuswamy
Chairman, KMCH Ethics Committee

Dr. P. R. MUTHUSWAMY,
MA ,MLA ,LLM(HM-A)Ph.D.,
Chairman
Ethics Committee
Kovai Medical Center and Hospital
Avanashi Road,
COIMBATORE-641 014.

Enclosure: Copy to Dr.K.Rajendran

APPENDIX - F

REQUISITION FOR CONTENT VALIDITY

From,

II Year M. Sc., Nursing,

KMCH College of nursing,

Coimbatore- 641014.

To,

Through,

The Principal,

KMCH College of Nursing

Coimbatore

Respected Madam,

Sub: Seeking Expert opinion and Content Validity regarding

I am the student of KMCH College of Nursing. As a part of partial fulfillment of my post graduate programme, I wish to undertake a study titled, **"A STUDY TO ASSESS THE EFFECTIVENESS OF THERAPEUTIC PLAYS ON BEHAVIOURAL DISTRESS AND SELECTED PHYSIOLOGICAL PARAMETERS OF CHILDREN UNDERGOING INVASIVE MEDICAL PROCEDURES AT KOVAIMEDICAL CENTER AND HOSPITAL COIMBATORE"** It will be of immense help to me if you could peruse the proposal and the research tool. Here with I am enclosing the copy to the same. Kindly do the needful.

Thanking You

Yours faithfully,

Place:

Date:

APPENDIX - H

LIST OF EXPERTS

1. **Dr. K. Rajendran, M.B.B.S., M.D.,(Paed)**
   Head of the Department
   Department of Paediatrics & Neonatetology
   Kovai Medical Centre and Hospital
   Coimbatore- 14

2. **Mrs. N.B. Mahalakshmi., M.Sc (N).,**
   Professor in Child Health Nursing
   KMCH College of Nursing
   Coimbatore – 14

3. **Mrs. V. Vijayalakshmi., M.Sc (N).,**
   Professor in Child Health Nursing
   KMCH College of Nursing
   Coimbatore – 14

4. **Mrs. R. Sasikala M. Sc (N).,**
   Reader in Child Health Nursing
   KMCH College of Nursing
   Coimbatore – 14

5. **Mrs. K. Kalimani M. Sc (N).,**
   Reader in Child Health Nursing
   KMCH College of Nursing
   Coimbatore – 14